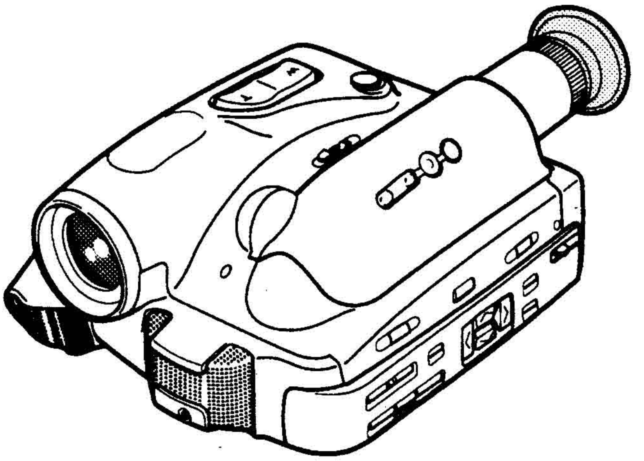
AKAI SERVICE MANUAL



Intelligent-HQ 8

VIDEO CAMERA RECORDER

MODEL PV-M2/F
MODEL PV-M4/F

SPECIFICATIONS

PV-M2/F, M4/F	
Video recording system	Two rotary heads, helical scanning FM system
Audio recording system	Two rotary heads, helical scanning FM system
Video signal	PAL colour, CCIR standards
Usable cassette	8 mm video format cassette
Recording/playback time	
SP mode	90 min. with P5-90 cassette
LP mode	180 min. with P5-90 cassette
Tape speed	
SP mode	Approx. 20.051 mm/sec.
LP mode	Approx. 10.058 mm/sec.
FF/REW time	Approx. 6.5 min. with P5-90 cassette
Video	
Line output	Phono jack, 1.0 Vp-p / 75 ohms, unbalanced
Audio	
Line output	Phono jack, − 7.5 dBs/2.2 k ohms, unbalanced
Microphone input	Mini jack, − 68 dBs, high impedance, unbalanced with approx. 1.5 V DC output, impedance 6.8 k ohms
Earphone output	Mini jack
Microphone	Electret condenser microphone
Image sensor	1/3" CCD image sensor (320,000 pixels)
Lens	F/1.8, f= 6.0 - 48 mm 8 times power zoom lens Filter diameter 37 mm
Viewfinder	Electronic viewfinder with 0.6" (15.2 mm) black/white CRT
Auto focus system	TTL
Shutter speed	1/50 to 1/10000 (8 steps)
Aperture control	Automatic
Colour temperature	Auto/ 3200 °K/ 4500 °K/ 7200 °K
Minimum illumination	2 lux (F1.8)
Recommended illumination	More than 100 lux
Power source	DC 6.0 V
Power consumption	6.5 W including the viewfinder (camera recording)
Operating temperature	0°C to +40°C
Operating humidity	35 % to 80 %
Dimensions	Approx. 133 (W) X 84 (H) X 168 (D) mm
Weight	
PV-M2	Approx. 660 g (w/o battery)
PV-M4	Approx. 670 g (w/o battery)

VA-300EA/EK/EG	
Power requirement	AC 110 - 240 V, 50/60 Hz
Power consumption	24 W
Output	DC 8.0 V, 1.3 A (charge) DC 6.8 V, 1.8 A (Video camera)
Charging system	Constant current, Peak detection, timer controlled
Dimensions	69 (W) X 41 (H) X 150 (D) mm
Weight	380 g

Standard accessories		
Operator's manual	1	
Rechargable battery (BP-N300)	1	
DC connection cord	1	
Shoulder strap (SB-101)	1	
Lithium battery (CR2032E)	1	
Lithium battery (CR2025E)	1	(PV-M4/F only)
AV cable (VW-300)	1	(PV-M2 only)
AV cable (VW-301)	1	(PV-M4 only)
AV cable (VW-321)	1	(PV-M2F only)
AV cable (VW-322)	1	(PV-M4F only)
Carrying case (VG-C301)	1	(PV-M2F, M4F only)
Cassette tape (P5-60SG)	1	(PV-M2F, M4F only)

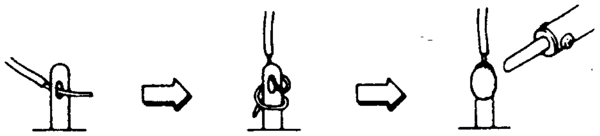
0 dBs = 0.775 V

∗ For improvement purposes, specifications and design are subject to change without notice.

★SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts indentified by the ⚠ (✱) symbol are critical for safety. Replace them only with the parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with the specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts.
   Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (insulating barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing micro switches
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap the ends of the wires securely around the terminals before soldering.



6. Make sure that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not come in contact with sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Make sure that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SAFETY CHECK AFTER SERVICING

After servicing, make measurements of the leakage current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit.
The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal input/output connectors, etc.) and the earth ground through a resistor of 1500 ohms paralleled with a 0.15 μF capacitor, under the unit's normal working conditions. The leakage-current should be less than 0.5 mA rms AC.
The resistance measurement should be done between accessible exposed metal parts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2 Mohms.

MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can. Please leave them at an appropriate depot.

PRECAUTIONS FOR LITHIUM BATTERY

The lithium battery may explode if incorrectly replaced.
[OBSERVE THE FOLLOWING WHEN REPLACING]

- Replace with the same make and type (or equivalent) recommended by the manufacturer.
- Place the battery in the correct polarity.
- Do not short the terminals.
- Do not recharge the battery.
- Do not dispose of the battery in a fire.

NOTE:
Do not disconnect or connect any connectors (especially when the FPC cable is connected) while the power is supplied to the unit even if the POWER SWITCH is turned OFF during servicing.
It may cause a short circuit and destroy the resistors or semiconductors.

SAFETY CHECK AFTER SERVICING (VA-300 ONLY)

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) See table 1 below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

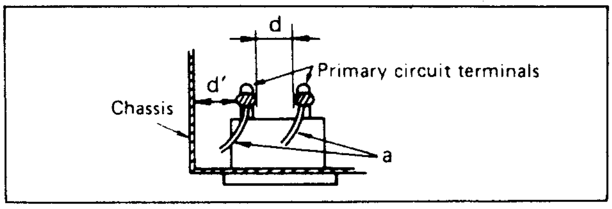


Table 1 : Ratings for selected areas

AC Line Voltage	Insulation Resistance	Dielectric Strength	Clearance Distance (d), (d')
100 to 240 V	≧1 M ohm/500 V DC	1.5 kV 1 minute	≧4 mm (d') (a : Power cord)

Note : This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

4. Leakage current test

Confirm specified or lower leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method: (Power ON)
Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure and following table 2.

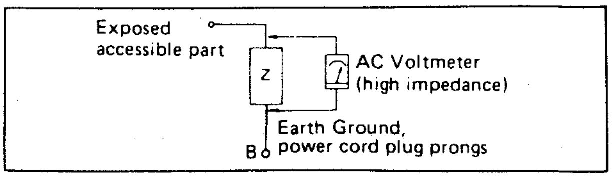

Exposed accessible part
Z
AC Voltmeter (high impedance)
Earth Ground, power cord plug prongs
B

Table 2 : Leakage current ratings for selected areas

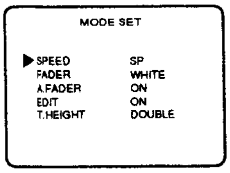
AC Line Voltage	Load Z	Leakage Current (i)	Earth Ground (B) to:
100 to 240V	50 k ohms	i ≦ 0.7 m A peak i ≦ 2 m A dc	Other terminals

Note : This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

★ INFORMATION

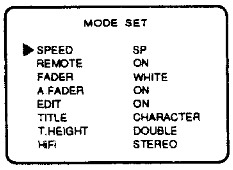
MODE SET menu

The MODE SET menu can be displayed in the viewfinder or on a monitor TV and used to adjust various VIDEO CAMERA modes. The following modes are displayed.



```
        MODE SET

▶SPEED        SP
 FADER        WHITE
 A.FADER      ON
 EDIT         ON
 T.HEIGHT     DOUBLE
```

PV-M2



```
          MODE SET

▶SPEED        SP
 REMOTE       ON
 FADER        WHITE
 A FADER      ON
 EDIT         ON
 TITLE        CHARACTER
 T.HEIGHT     DOUBLE
 HiFi         STEREO
```

PV-M4

•SPEED......SP/LP

Two recording speeds are available.

SP (standard play):
To record in the SP mode (approx. 20.051 mm/sec)
LP (long play):
To record in the LP mode (approx.10.058 mm/sec)

•REMOTE.....ON/OFF (PV-M4 only)

To engage or cancel the remote control function.

•FADER......WHITE/BLACK

To set the VIDEO CAMERA for white or black fade in/out.

•A. FADER....ON/OFF

To engage or cancel the auto fader function.

•EDIT.......ON/OFF

To display or cancel displays on the TV monitor. This mode can be used to conveniently cancel displays you do not want to record during tape dubbing.

OFF:
All displays superimposed in the viewfinder will be displayed on the TV monitor.
ON:
Only date/time, title and MODE SET displays will be displayed on the TV monitor. All other displays will appear in the viewfinder only.

•TITLE......BANK/CHARACTER (PV-M4 only)

To set the camera for stored bank title selection or character generated title (original title) selection.

•T. HEIGHT...DOUBLE/NORMAL

To set the stored title height to normal or double size.

•Hi-Fi......STEREO/LEFT/RIGHT/L+R (PV-M4 only)

Choose the channel which you wish to monitor when playing back a prerecorded tape which is recorded in stereo or bilingual mode.

STEREO:
Choose this setting when playing back a tape recorded in the Hi-Fi stereo sound.
LEFT:
Choose this setting when you wish to monitor only the left channel of the Hi-Fi stereo tape or main audio portion of a bilingual tape.
RIGHT:
Choose this setting when you wish to monitor only the right channel of the Hi-Fi stereo tape or sub audio portion of a bilingual tape.
L+R:
Choose this setting when you wish to monitor the Hi-Fi stereo or bilingual tape in monaural (or main and sub-mixed).

To set the modes you want:

1. Press the M-SET (MODE SET) button.
   The MODE SET menu will appear in the viewfinder.
2. Select the mode to be set with the ∧ or ∨ button.
3. Set the mode setting with the < or > button.
4. Repeat steps 2 and 3 to set another mode.
5. Press the SET button after all modes have been set.
   The MODE SET menu will disappear.

Note:

- The MODE SET menu can be cancelled at anytime during the above operation by pressing the M-SET button.

TEST MODE

Many kinds of test modes are prepared for the various adjustments on this video camera. In the test mode, a number of the numeral rows appear on the TV screen when the "DISPLAY" button is pressed twice and the data during the adjustment is displayed in hexadecimal numbers in the numeral rows.
Some special characters (marks) are given on respective adjustments and will be displayed on the TV screen during the test mode.

To engage the various test modes, press and hold the assigned buttons shown in the list simultaneously when the power is ON, keep holding the buttons for a few seconds until the test mode number and special character appear on the TV screen.

To cancel the test mode, firmly press the reset button down (the negative battery terminal on the rear) or disconnect the power supply from the unit (in this case, the lithium battery for back up must be removed first.).

To engage various test modes.

TEST MODE No.	BUTTONS PRESSED	PURPOSE	SYMBOL
TEST MODE 02	∧ & >	TAPE transport ADJ	OCTOPUS
TEST MODE 04	∨ & <	VIDEO circuit check	KANGAROO
TEST MODE 81	REC & DATE/TIME	CAMERA general ADJ.	SQUID
TEST MODE 82	COUNTER RESET & DATE/TIME	CAMERA lens ADJ.	OCTOPUS
TEST MODE 11	BACK LIGHT & WHITE BALANCE	VTR section final ADJ.	SQUID
TEST MODE 12	FULL AUTO & SHUTTER	CAMERA's function check	OCTOPUS

The function of TEST MODE 02

BUTTON	FUNCTION
-	The reel rotation sensor and the drum motor stop circuit do not operate in TEST MODE 02.
< or >	To change the ATF off-set bias during playback.
COUNTER RESET	To adjust the video switching point automatically.

The function of TEST MODE 04

BUTTON	FUNCTION
COUNTER RESET	To switch the Y/C separation IR adjusting mode ON/OFF.
<	To change the NOISE CANCEL level.
>	To change the Y comb filter level.

The function of TEST MODE 11

BUTTON	FUNCTION
REC	When playing back an SP pre-recorded tape, adjust the switching point automatically and the data will be memorized in the EEP ROM IC.
>	Set the ATF bias level to +1.
<	Set the ATF bias level to −1.
∧	Set the ATF bias level at maximum.
∨	Set the ATF bias level at minimum.
PLAY	Set the ATF bias level to the center.
SHUTTER	To memorize the present ATF bias level to the EEP ROM IC and set it as the center value.
I-HQ	To switch the I-HQ ON / OFF.
SET	To memorize the present I-HQ data to the EEP ROM IC.
WHITE BALANCE	To move the switching pulse to the PCM zone.
STILL	To change the tape speed during recording.
FADER	To select the normal or faded picture (white or black).
∧ & ∨	To set the IMS characters to English.
> & <	To set the IMS characters to French.

The function of TEST MODE 12

BUTTON	FUNCTION
SHUTTER	Shutter speed changes from 1/50 to 1/10000 and back to 1/50 automatically (in 8 steps).
WHITE BALANCE	White balance changes in one complete cycle automatically.

IMPORTANT:

1. Auto focus tracking adjustment is absolutely necessary in the following conditions. Refer to step 5-3-2 on page 49.

1) The LENS BLOCK or ZOOM ENCODER PCB (on the LENS BLOCK) is replaced.
2) The CCD element or CAMERA (1) PCB is replaced.
3) The EEP-ROM IC (IC310), micro processing IC (IC309) or OPE-AMP IC (IC304 or 305) in the CAMERA (1) PCB is replaced.

2. I-HQ ENVE DET PRESET adjustment is necessary to maintain proper performance in the following conditions. Refer to step 5-4-3 on page 52.

1) EEP-ROM IC (IC310), micro processing IC (IC309) in the CAMERA (1) PCB is replaced or CAMERA (1) PCB is replaced.
2) HEAD DRUM BLOCK is replaced.
3) PRE AMP PCB is replaced.

3. If the HEAD DRUM BLOCK is replaced, the following adjustments are necessary to maintain proper performance. Make sure to demagnetize the rotary heads before proceeding.

1) PB switching point adjustment. (Electrical adj. 5-4-1)
2) ATF tracking adjustment. (Electrical adj. 5-4-2)
3) I-HQ ENVE DET PRESET adjustment. (Electrical adj. 5-4-3)
4) A/V head REC current adjustment. (Electrical adj. 5-2-1, step 6 & 5-2-2, step 5, 6)

I. DISASSEMBLY

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the illustrations. Reassemble in the reverse order.

1-1.Removal of the UPPER CASE BLOCK

1. Remove the two Ⓐ screws which retain the right side of the UPPER CASE BLOCK.
2. Remove the Ⓑ screw and remove the LENS HOOD. (If there is no hole on the lens decoration plate, peel off the lens decoration plate then remove the Ⓑ screw.)

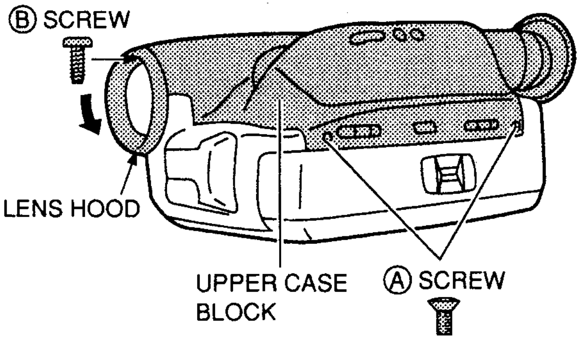

Ⓑ SCREW
LENS HOOD
UPPER CASE BLOCK
Ⓐ SCREW

Fig.1-1

3. Remove the Ⓒ screw and Ⓓ screw which retain the left side of the UPPER CASE BLOCK.

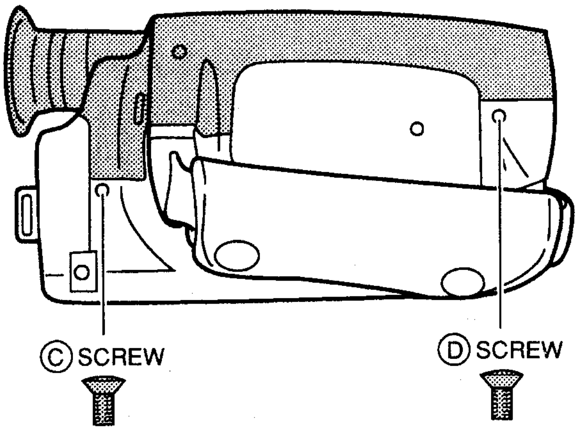

Ⓒ SCREW
Ⓓ SCREW

Fig.1-2

4. Remove the REMOTE CONTROL UNIT if it is mounted (PV-M4 only) and remove the Ⓔ screw which retains the upper side of the UPPER CASE BLOCK.

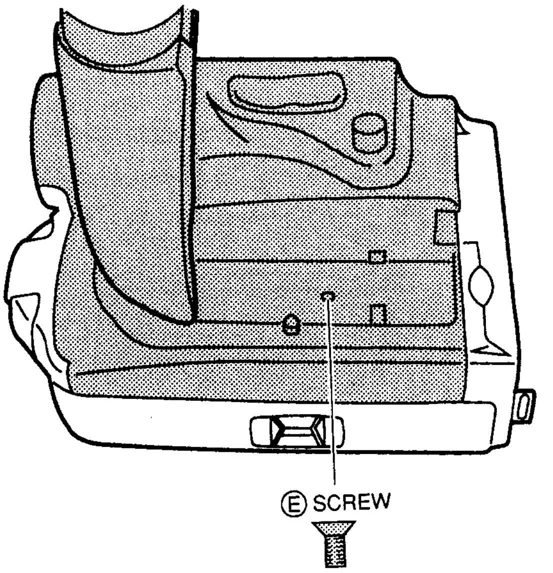


Fig.1-3

1-2.Removal of the BOTTOM CASE BLOCK

1. Remove the three Ⓐ screws and remove the STAND HOLDER.

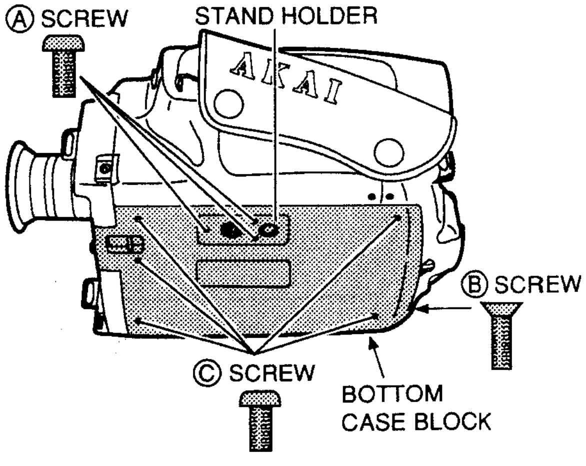

Ⓐ SCREW
STAND HOLDER
AKAI
Ⓑ SCREW
Ⓒ SCREW
BOTTOM CASE BLOCK

Fig.1-4

2. Remove the Ⓑ screw and five Ⓒ screws as shown in Fig.1-4 then remove the BOTTOM CASE BLOCK.

1-3. Removal of the BATTERY HOLDER CASE

1. Remove the four Ⓐ screws which retain the BATTERY HOLDER CASE and remove it.

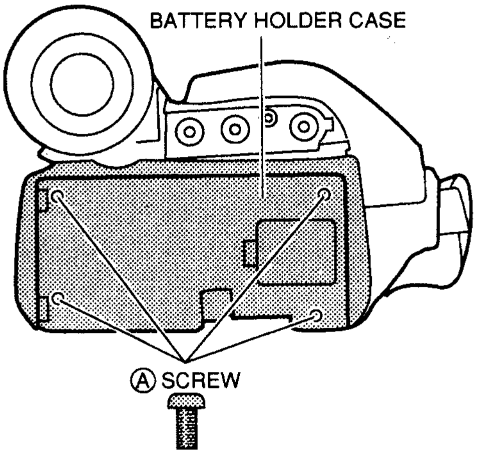

BATTERY HOLDER CASE
Ⓐ SCREW

Fig.1-5

1-4. Removal of the GRIP CASE BLOCK

1. Remove the Ⓐ screw and two Ⓑ screws then remove the GRIP CASE BLOCK.

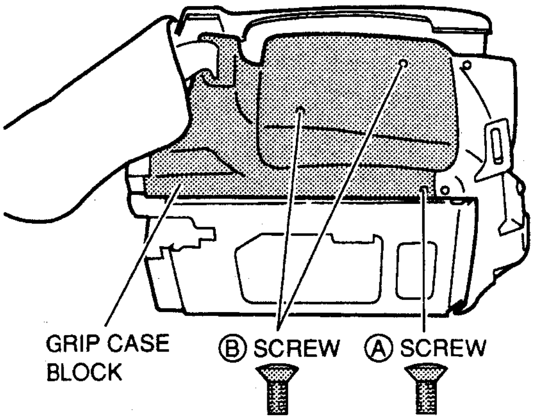

GRIP CASE BLOCK
Ⓑ SCREW
Ⓐ SCREW

Fig.1-6

1-5. Removal of the MIC BLOCK

1. If it is necessary to detach the UPPER CASE BLOCK completely, unlock the stoppers of the P17 and P711 connectors by pulling them in the direction of the arrow then disconnect both the FPC (Flexible Printed Circuit) cables. And then disconnect the P13 connector to detach the UPPER CASE BLOCK.

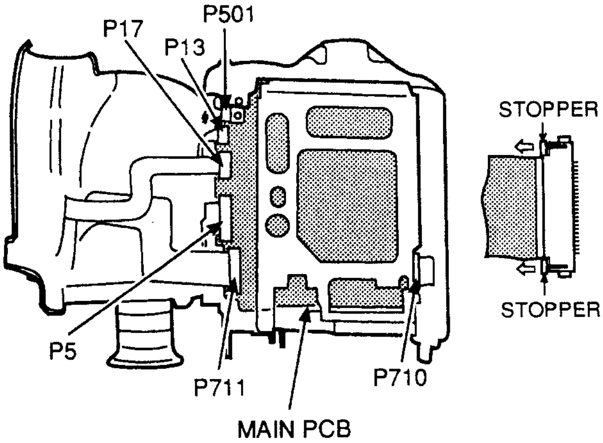

P17
P501
P13
STOPPER
STOPPER
P5
P711
P710
MAIN PCB

Fig.1-7

2. Disconnect the P501 connector as shown in Fig.1-7
3. Remove the Ⓐ and Ⓑ screws which retain the MIC BLOCK as shown in Fig.1-8.

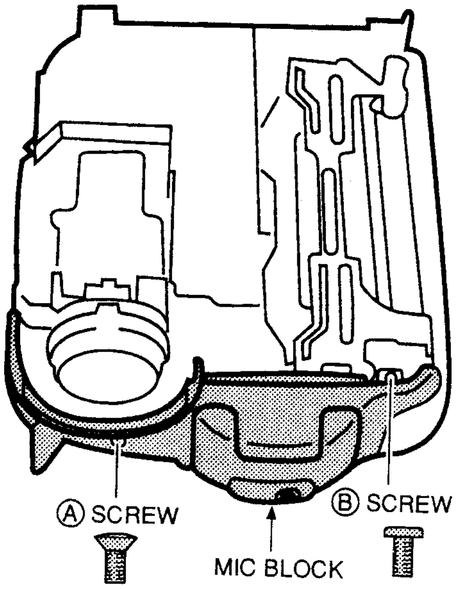

Ⓐ SCREW
MIC BLOCK
Ⓑ SCREW

Fig.1-8

1-6.Removal of the OPERATION A BLOCK

1. Unlock the stopper of the P710 connector as shown in Fig.1-7 and disconnect the FPC cable.
2. Remove the Ⓐ and Ⓑ screws which retain the OPERATION A BLOCK and remove it.

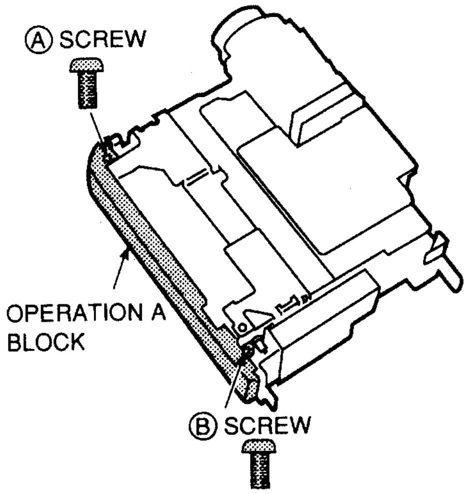

Ⓐ SCREW
OPERATION A BLOCK
Ⓑ SCREW

Fig.1-9

1-7.Disassembling the UPPER CASE BLOCK

1-7-1. Removal of the VIEWFINDER BLOCK

1. Disconnect the P119 connector on the CONNECTOR PCB.

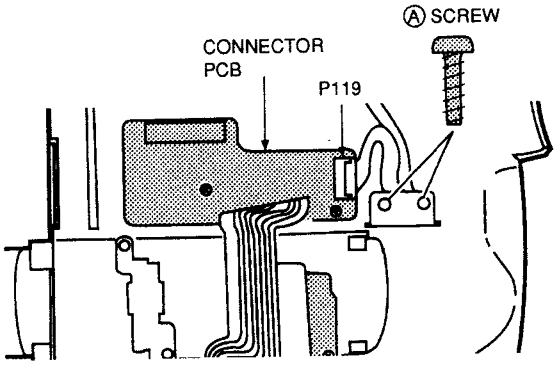

Ⓐ SCREW
CONNECTOR PCB
P119

Fig.1-10

2. Remove the two Ⓐ screws which retain the VIEWFINDER BLOCK.

1-7-2. Removal of the CONNECTOR PCB

1. Disconnect the P119 connector on the CONNECTOR PCB.
2. Remove the two Ⓐ screws on the OPERATION H (M4) BLOCK (PV-M4) and Ⓑ screw on the REMO-CON PIN PCB as shown in Fig.1-11 .

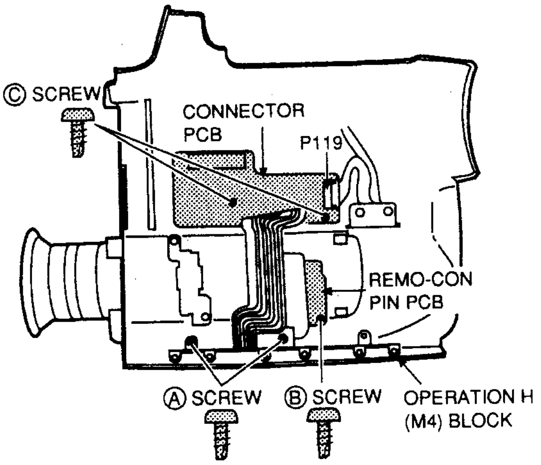

Ⓒ SCREW
CONNECTOR PCB
P119
REMO-CON PIN PCB
Ⓐ SCREW
Ⓑ SCREW
OPERATION H (M4) BLOCK

Fig.1-11 (PV-M4)

Remove the two Ⓐ screws and three Ⓑ screws which retain the OPERATION H (M2) BLOCK (PV-M2) as shown in Fig.1-12.

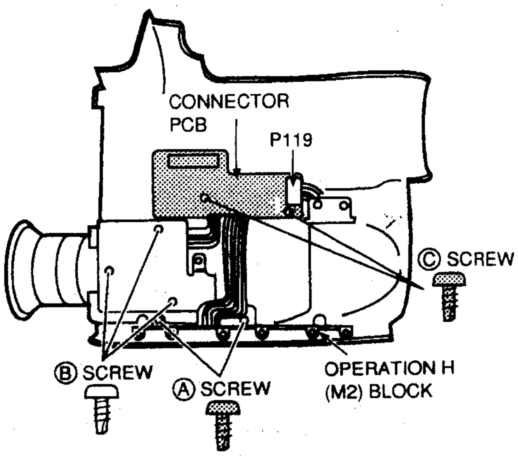

CONNECTOR PCB
P119
Ⓒ SCREW
Ⓑ SCREW
Ⓐ SCREW
OPERATION H (M2) BLOCK

Fig.1-12 (PV-M2)

3. Remove the two Ⓒ screws on the CONNECTOR PCB as shown in Fig.1-11 (or Fig.1-12) then remove the three Ⓓ screws and Ⓔ screw on the OPERATION TW BLOCK as shown in Fig.1-13

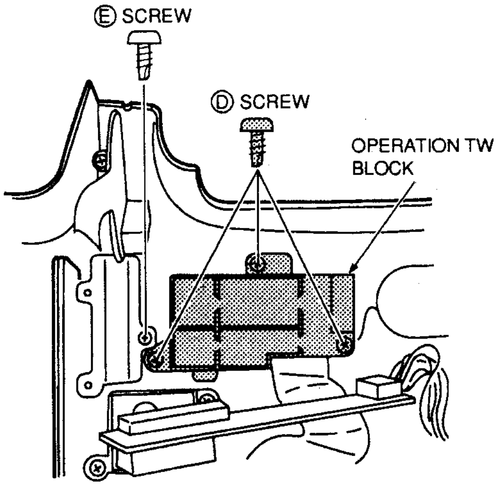

Ⓔ SCREW
Ⓓ SCREW
OPERATION TW BLOCK

Fig.1-13

4. Remove the CONNECTOR PCB (with the OPERATION H BLOCK, OPERATION TW BLOCK and REMOCON PIN PCB attached) very carefully so as not to damage the FPC cables.

1-7-3. Removal of the AV JACK BLOCK

1. Remove the CONNECTOR PCB (refer to 1-7-2).
2. Remove the two Ⓐ screws and remove the REMOTE SENSOR BLOCK (PV-M4 only).

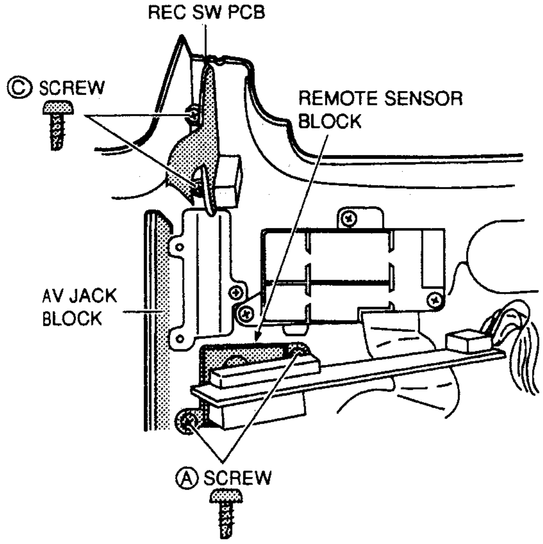

REC SW PCB
Ⓒ SCREW
REMOTE SENSOR BLOCK
AV JACK BLOCK
Ⓐ SCREW

Fig.1-14

3. Peel off the decoration plate on the AV OUT JACK then remove the two Ⓑ screws and remove the AV JACK.

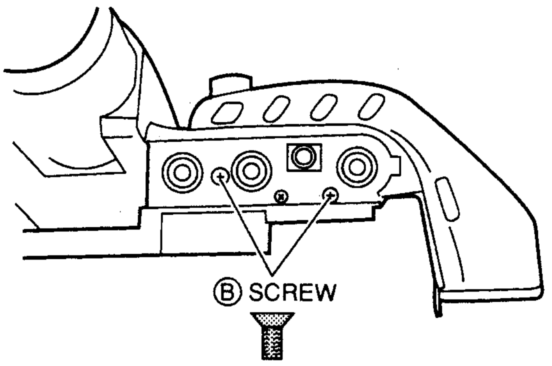


Fig.1-15

4. Remove the two Ⓒ screws which retain the REC SWITCH PCB as shown in Fig.1-14 then remove the AV JACK BLOCK carefully.

II. PRINCIPAL PARTS LOCATION

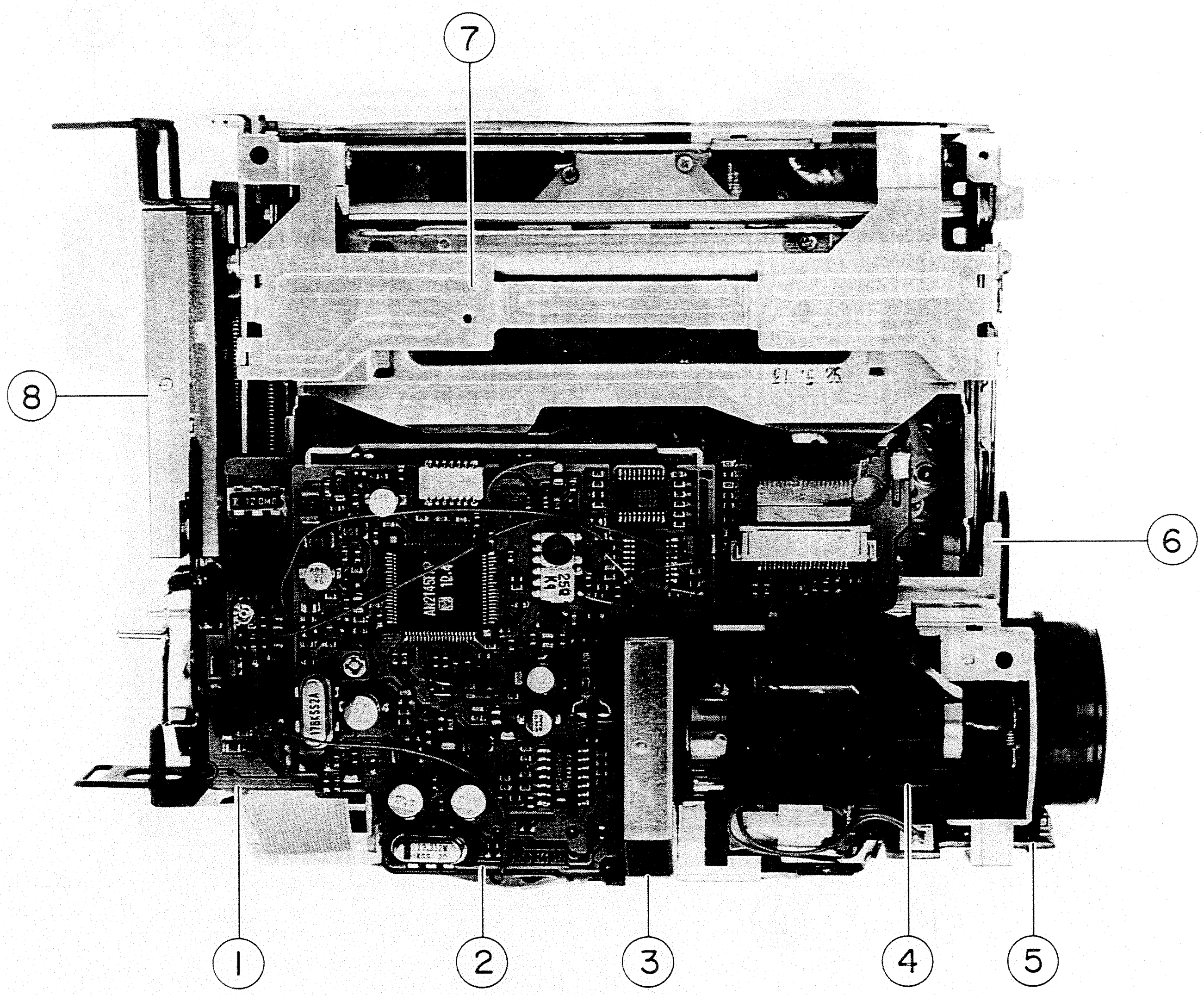


Fig. 2-1 Top view

1. CAMERA (1) PCB
2. CAMERA (2) PCB
3. CCD PCB
4. LENS BLOCK
5. ZOOM ENCODER PCB
6. LENS HOLDER (2) PART
7. LENS HOLDER (3) PART
8. POWER SUPPLY PCB

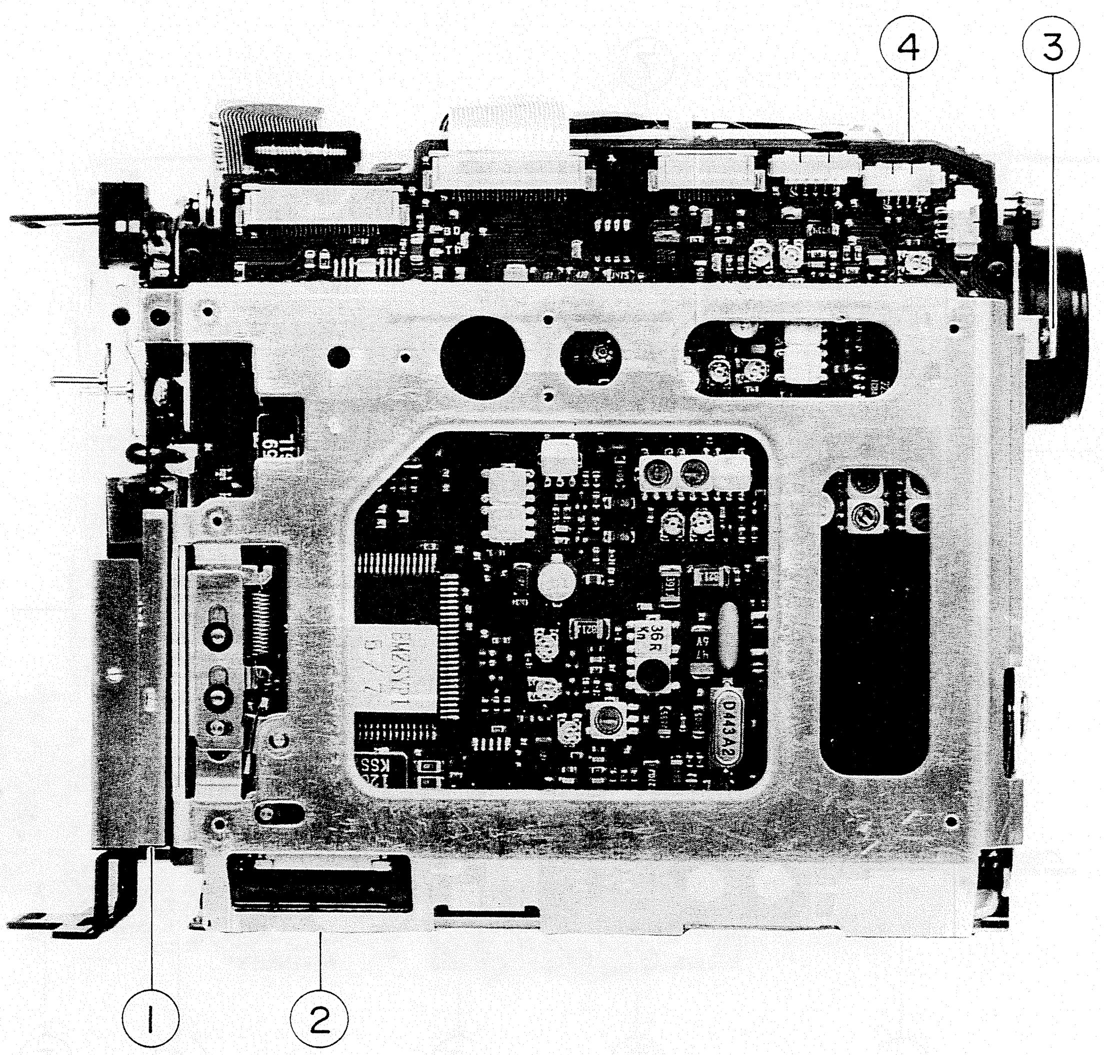


Fig. 2-2 Bottom view

1. POWER SUPPLY PCB
2. MECHA. COVER
3. LENS HOLDER (1) PART
4. MAIN PCB

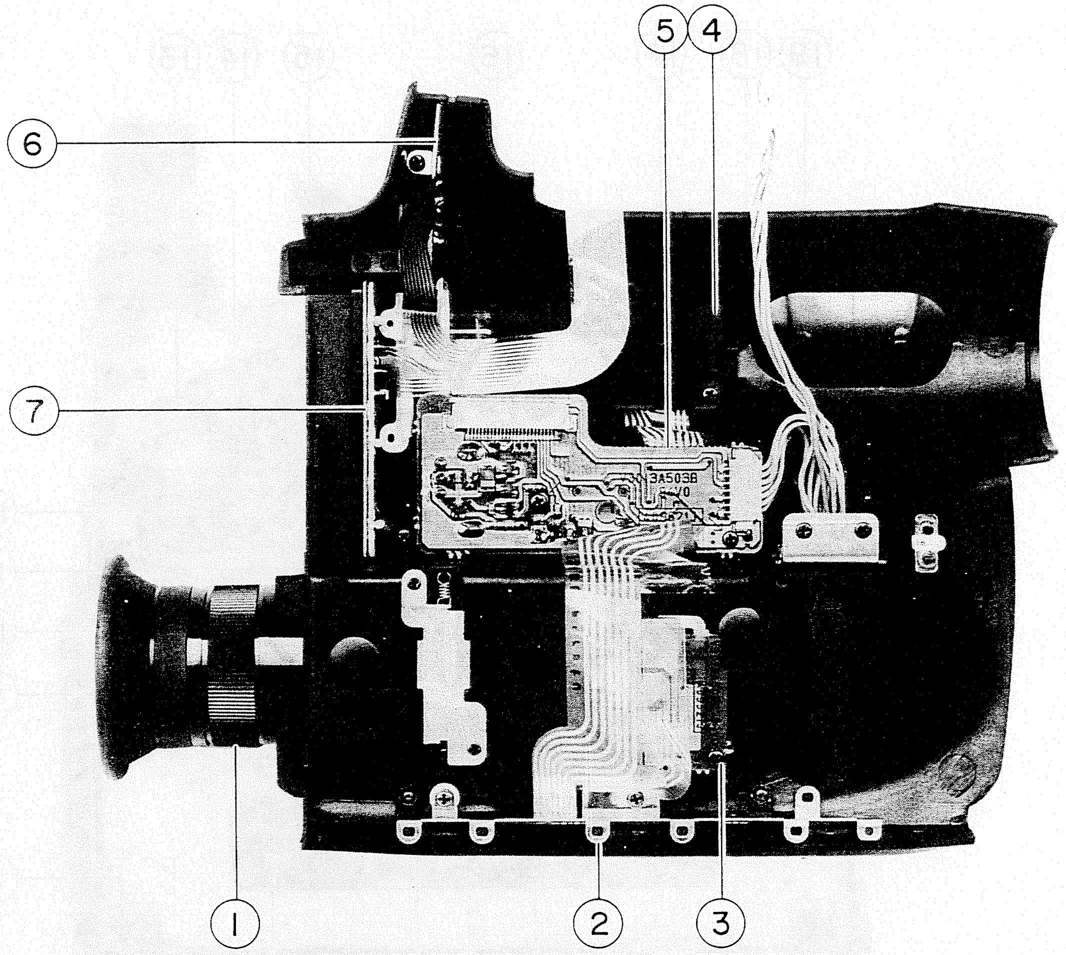


Fig. 2-3 UPPER CASE BLOCK (PV-M4)

1. VIEWFINDER BLOCK
2. OPERATION H BLOCK
3. REMO-CON PIN PCB
4. OPERATION TW BLOCK
5. CONNECTOR PCB
6. A/V JACK BLOCK 1/2 (REC SWITCH & PHONE JACK)
7. A/V JACK BLOCK 2/2 (A/V OUT JACK)

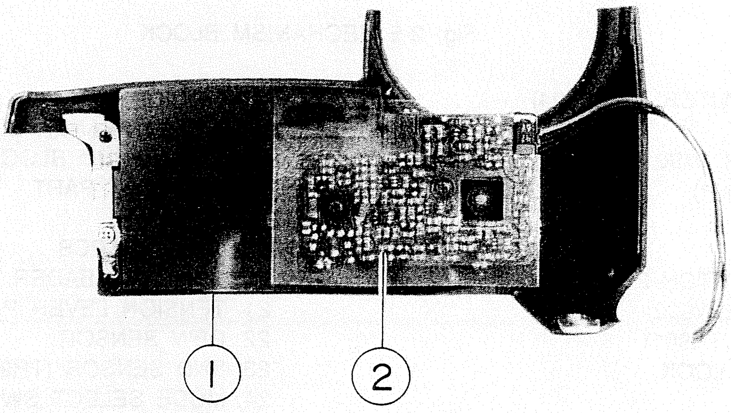


Fig. 2-4 MIC BLOCK

1. MIC PART
2. MIC AMP PCB

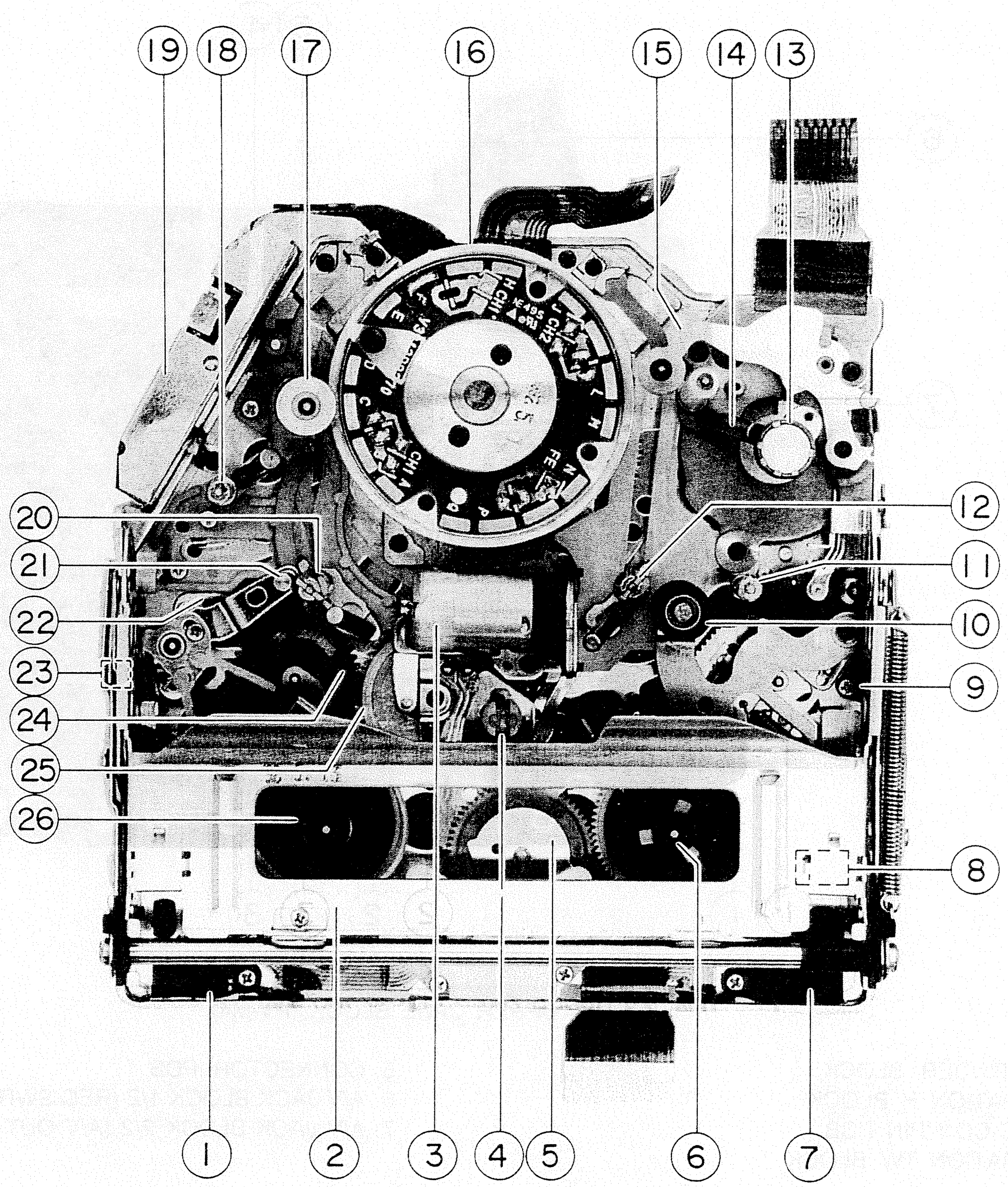


Fig. 2-5 MECHANISM BLOCK

1. TAPE DETECT SWITCH 1 (SW904)	14. TAPE GUIDE
2. EJECTOR BLOCK	15. HEAD CLEANER BLOCK
3. LOADING MOTOR (M901)	16. HEAD DRUM BLOCK
4. SENSOR LED (D901)	17. Z ROLLER PART
5. IDLER PART	18. GUIDE (1)
6. (T) REEL PART	19. PRE AMP PCB
7. TAPE DETECT SWITCH 2 (SW901)	20. LOADING LEADER (S) PART
8. EJECT SWITCH (SW902)	21. TENSION LEVER PART
9. START SENSOR (TR901)	22. DEW SENSOR
10. PINCH ROLLER BLOCK	23. END SENSOR (TR902)
11. REVIEW ARM	24. MODE SELECT SWITCH
12. LOADING LEADER (T) PART	25. CENTER CAM GEAR
13. CAPSTAN MOTOR	26. (S) REEL PART

III. MAIN COMPONENTS REPLACEMENT

Note: When disassembling the MECHA. BLOCK, the LOADING MECHANISM must firstly be set to the eject position. Press the EJECT button before disassembling the unit.

3-1.Removal of the POWER SUPPLY PCB

1. Remove the two Ⓐ screws which retain the POWER SUPPLY PCB as shown in Fig. 3-1.

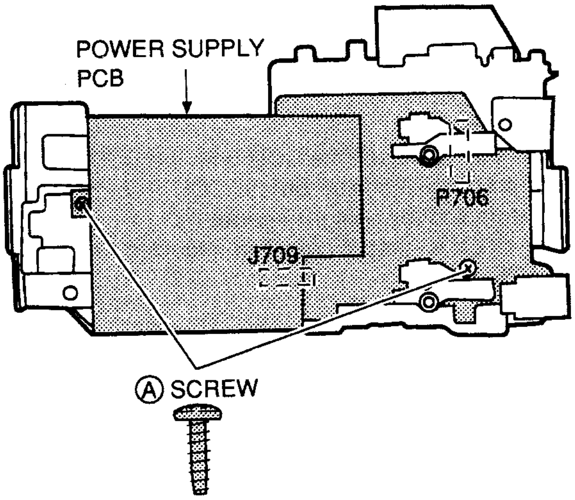


Fig. 3-1

2. While holding the CHASSIS and POWER SUPPLY PCB, squeeze the POWER SUPPLY PCB gently and pull it forwards to detach the J709 connector from the P309 connector on the MAIN PCB.
3. To remove the POWER SUPPLY PCB from the MECHANISM BLOCK, disconnect the P706 connector on the POWER SUPPLY PCB which comes from the CAMERA BLOCK.

3-2.Removal of the CAMERA BLOCK

3-2-1. Removal of the CAMERA BLOCK

1. Remove the POWER SUPPLY PCB (refer to step 3-1).
2. Unlock the stopper of the P5 connector on the MAIN PCB located on the bottom and disconnect the FPC cable as shown in Fig.1-7.
3. Remove the Ⓐ screw on the rear of the chassis.

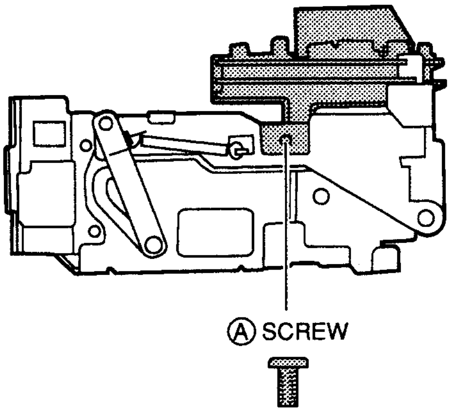


Fig. 3-2

4. Remove the Ⓑ screw on the LENS BLOCK left side and the Ⓒ screw on the front of the chassis then remove the CAMERA BLOCK.

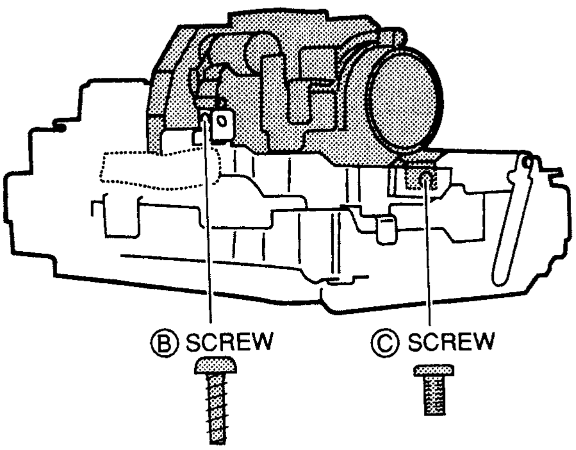


Fig. 3-3

3-2-2. Removal of the LENS BLOCK

1. Unlock the stopper of the P304 connector on the CAMERA (1) PCB and disconnect the LENS BLOCK's FPC cable.

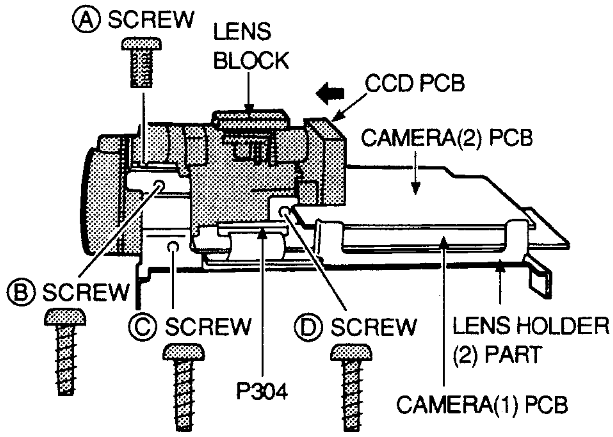


Fig. 3-4

2. Remove the LENS BLOCK retaining Ⓐ, Ⓑ, Ⓒ and Ⓓ screws as shown in Fig.3-4 and while holding the CAMERA (2) PCB with your right hand, squeeze and pull the CCD PCB shield cover in the direction of the arrow very carefully with your left hand to detach the LENS BLOCK (with CCD PCB attached) from the CAMERA (2) PCB.
3. In case you are removing the CAMERA (1) PCB and CAMERA (2) PCB from the LENS HOLDER (2) part, take care not to scratch any of the chips mounted on the PCB by the chassis's PCB holders (grooves on the chassis).
4. Reassemble in the reverse order for installation.

3-2-3. Removal of the CCD PCB.

1. Remove the two Ⓐ CCD PCB retaining screws and detach the CCD PCB carefully.

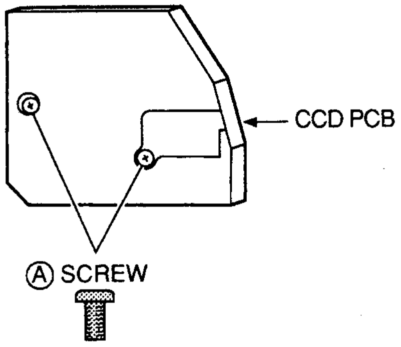


Fig. 3-5

2. When re-attaching the CCD PCB to the LENS BLOCK, take care not to damage or bend the CCD's leads.

3-2-4. Removal of the CCD

1. Remove the two Ⓐ screws which retain the CCD PLATE.

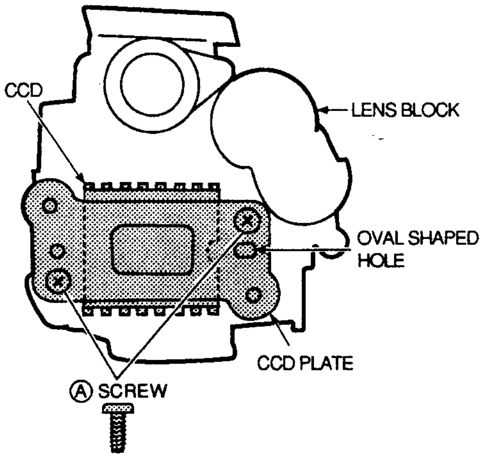


Fig. 3-6

2. If the X'TAL FILTER comes out of the LENS BLOCK or it has to be replaced for some reason, take care of the direction when installing it.

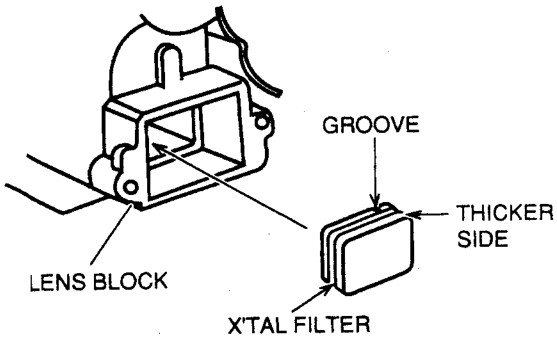


Fig. 3-7

3. When reassembling, very carefully clean the surface of the X'TAL FILTER (if it is removed from the LENS BLOCK) and CCD element (on the CCD PLATE) before installation. (We recommend using lens cleaning paper or a lens cleaning cloth). After confirmation that there is no dust, dirt or any finger prints on the surface of the CCD (and the X'TAL FILTER), attach the RUBBER SEAL on the CCD.
4. Place the CCD plate (with the rubber seal attached) on the LENS BLOCK, the oval shaped hole (CCD's groove side) on the CCD PLATE must be the right side as shown in Fig. 3-6. Then tighten the two retaining screws.

Note 1:

Do not try to detach the CCD from the CCD PLATE, as it is precisely mounted on the CCD PLATE, with glue, at the factory by using a special jig.
The CCD is always supplied mounted on the CCD PLATE.

Note 2:

Once the CCD plate is replaced or removed from the LENS BLOCK, auto focus tracking adjustment must be performed. Refer to the 5-3-2, "AUTO FOCUS TRACKING ADJUSTMENT" on page 49.

3-3.Removal of the MECHA. BLOCK

3-3-1. Removal of the MECHA. COVER PART

1. Remove the POWER PCB and CAMERA BLOCK (refer to 3-1 and 3-2).
2. Remove the Ⓐ, Ⓑ and three Ⓒ screws as shown in Fig. 3-8.

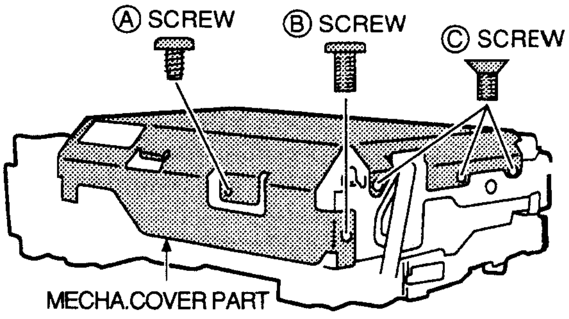


Fig. 3-8

3. Remove the three Ⓓ screws then remove the MECHA. COVER PART.

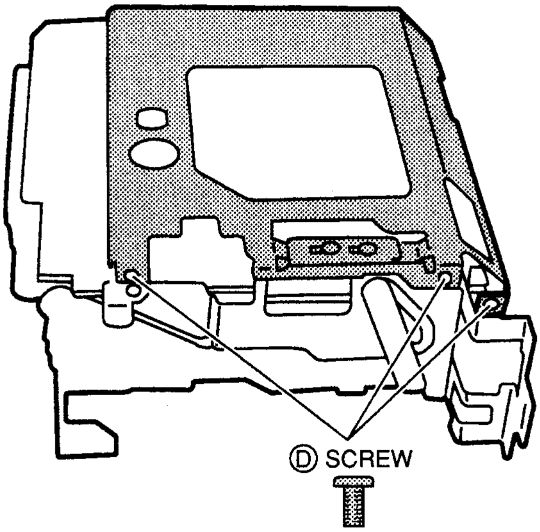


Fig. 3-9

3-3-2. Removal of the MAIN PCB

1. Remove the MECHA. COVER PART (refer to 3-3-1).
2. Unlock the stopper of the P312 connector and disconnect the MECHANISM SENSOR's FPC cable.

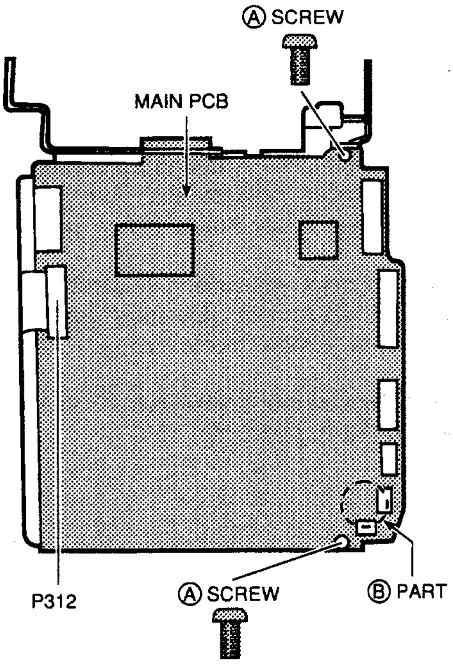

Ⓐ SCREW
MAIN PCB
P312
Ⓐ SCREW
Ⓑ PART

Fig. 3-10

3. Remove the two Ⓐ screws and lift up the Ⓑ part to disconnet the connector between the PRE AMP PCB and MAIN PCB as shown in Fig. 3-10.
4. Turn over the MAIN PCB taking care not damage to the other FPC cables.
   Unlock the stoppers of the P307 and P308 connectors then disconnect both the DRUM MOTOR and CAPSTAN MOTOR FPC cables.

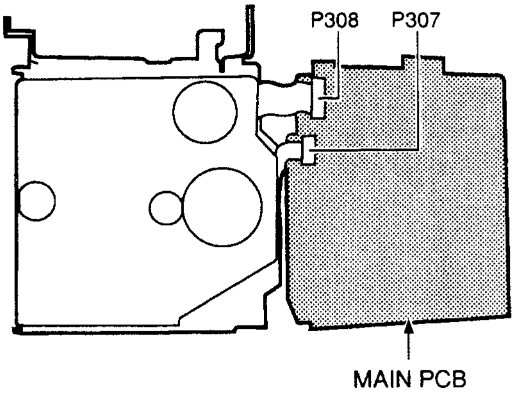

P308
P307
MAIN PCB

Fig. 3-11

3-3-3. Removal of the CAMERA HOLDER BLOCK

1. Remove the MAIN PCB (refer to 3-3-2).
2. Remove the two Ⓐ screws and remove the CAMERA HOLDER BLOCK (LENS HOLDER (1) PART and LENS HOLDER (3) PART).

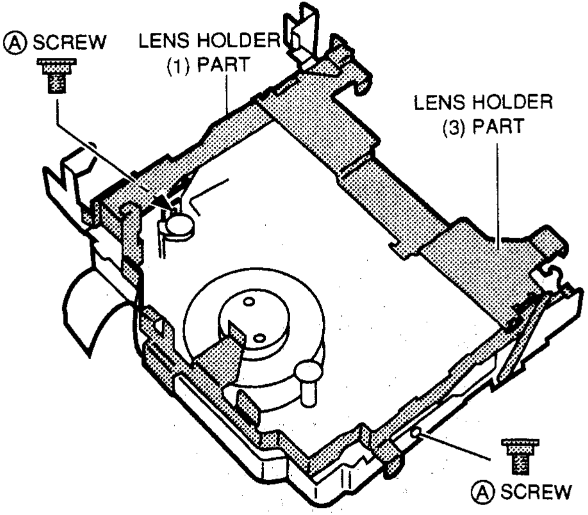

Ⓐ SCREW
LENS HOLDER (1) PART
LENS HOLDER (3) PART
Ⓐ SCREW

Fig. 3-12

3-3-4. Removal of the PRE AMP PCB

1. Unlock the stopper of the P916 connector on the PRE AMP PCB and disconnect the FPC cable which comes from the LOWER DRUM BLOCK.
2. Remove the Ⓐ screw and remove the PRE AMP PCB.

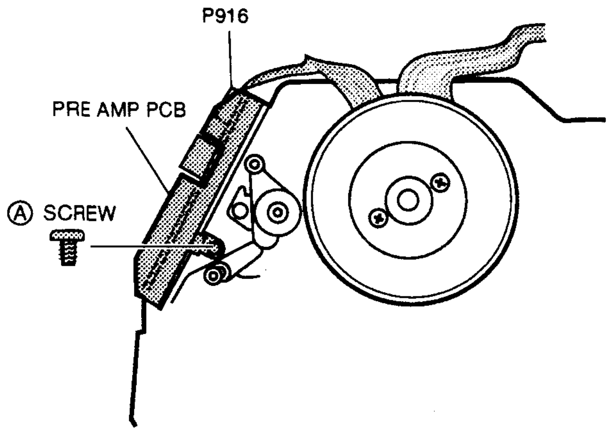


Fig. 3-13

3-4. Disassembling the MECHA. BLOCK

Note:

- It it necessary to remove the POWER SUPPLY PCB, CAMERA BLOCK, CAMERA HOLDER BLOCK, PRE AMP PCB and the MECHA. COVER PART in most cases before proceeding.
- Set the loading mechanism to the "reference position" supplying DC 4.5 V to the LOADING MOTOR before proceeding.

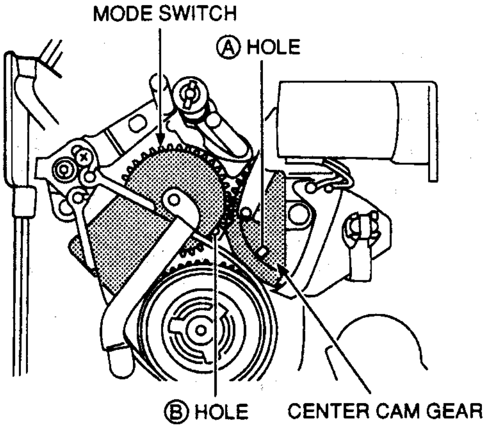


Fig. 3-14

At the reference position, the CENTER CAM GEAR's Ⓐ hole must be aligned with its reference hole on the chassis and the MODE SWITCH's Ⓑ hole must be aligned with its reference hole on the chassis and hole on the SLIDER PLATE.

3-4-1. Removal of the HEAD DRUM BLOCK

1. Remove the three Ⓐ screws as shown in Fig. 3-15.

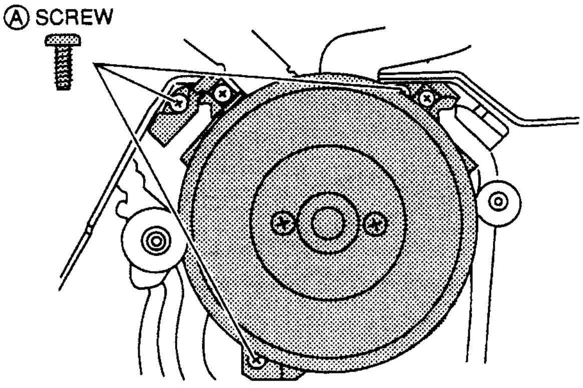


Fig. 3-15

2. When reattaching the HEAD DRUM BLOCK, taking care not to damage the FPC cables

Note:

1. When replacing the HEAD DRUM BLOCK, handle it with special care to avoid any scratching on the upper and lower head drums, or damaging the rotary head tips.
2. After replacement, the following adjustments are necessary for proper performance. And make sure to demagnetize the rotary heads before proceeding.

1) PB switching point adjustment. (Electrical adj. 5-4-1)
2) ATF tracking adjustment. (Electrical adj. 5-4-2)
3) I-HQ reference voltage memorization. (Electrical adj.5-4-3)
4) A/V head REC current adjustment. (Electrical adj. 5-2-1, step 6 & 5-2-2, step 5, 6)

3-4-2. Removal of the DRUM MOTOR PCB

1. Remove the HEAD DRUM BLOCK (refer to step 3-4-1).
2. Remove the Ⓐ screw and remove the EARTH BRUSH as shown in Fig. 3-16.

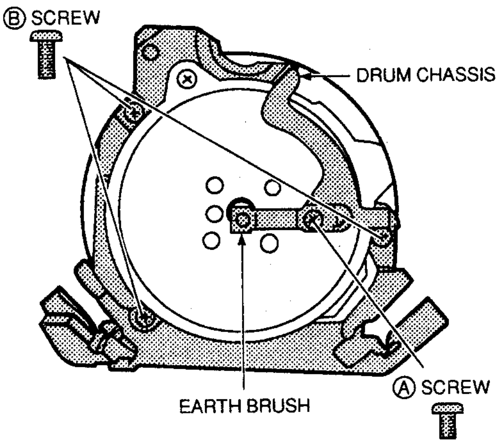


Fig. 3-16

3. Remove the three Ⓑ screws and remove the DRUM CHASSIS carefully as shown in Fig.3-16.
4. Remove the four Ⓒ screws on the MOTOR HOLDER as shown in Fig. 3-17.

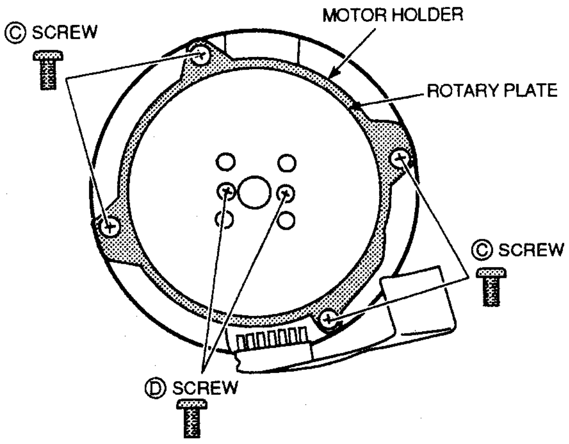


Fig. 3-17

5. Remove the two Ⓓ screws which retain the ROTARY PLATE and remove the ROTARY PLATE. As the power of the magnet on the ROTARY PLATE is very strong and the DRUM MOTOR PCB is sandwiched between the ROTARY PLATE and DRUM PLATE, take care not to damage the DRUM MOTOR PCB when removing the ROTARY PLATE. First removing the ROTARY PLATE with DRUM MOTOR PCB and DRUM PLATE attached from the COLLAR PRELOAD is recommended. Then hold the ROTARY PLATE and remove the DRUM PLATE very carefully.
6. Reassemble in the reverse order for installation. When reattaching the ROTARY PLATE, the Ⓐ hole on the COLLAR PRELOAD must be aligned with the Ⓑ hole on the ROTARY PLATE as shown in Fig. 3-18.

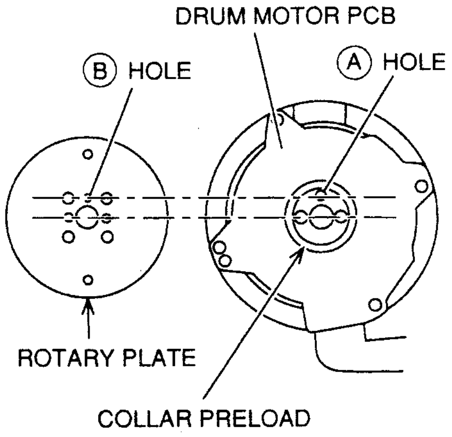


Fig. 3-18

Note:
After replacement, the following adjustments are necessary for proper performance.

1) PB switching point adjustment. (Electrical adj. 5-4-1)
2) ATF tracking adjustment. (Electrical adj. 5-4-2)

3-4-3. Removal of the EJECTOR BLOCK

1. Remove the slit washers on both the left and right sides of the MECHA. BLOCK as shown in Fig. 3-19.

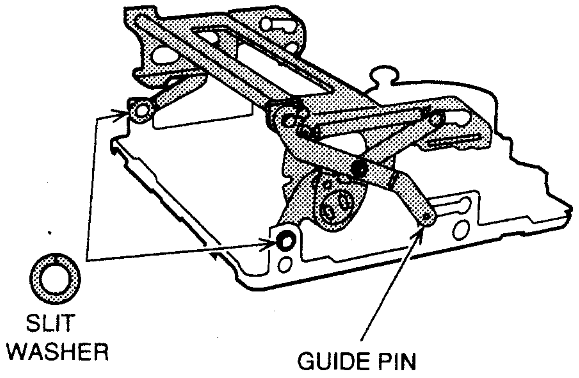


Fig. 3-19

2. Extract the individual guide pins from the respective guide holes on the chassis taking care not to damage them.
3. Reassemble in the reverse order for installation.

3-4-4. Removal of the HEAD CLEANER BLOCK and TAPE GUIDE HOLDER

1. Remove the EJECTOR BLOCK (refer to 3-4-3).
2. Unhook the cleaner arm spring then release the stopper of the CLEANER ARM BLOCK as shown in Fig. 3-20 and remove it.

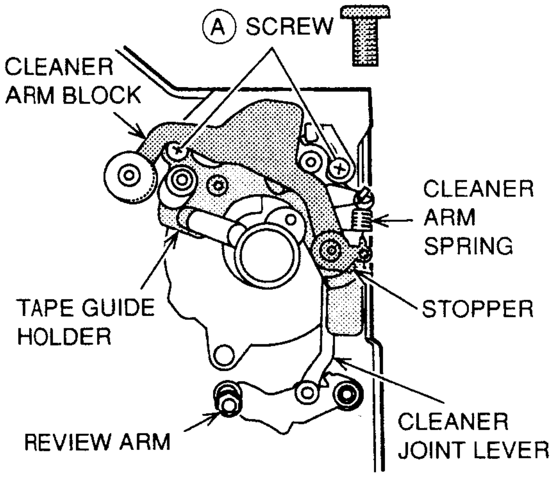

Ⓐ SCREW
CLEANER ARM BLOCK
CLEANER ARM SPRING
TAPE GUIDE HOLDER
STOPPER
REVIEW ARM
CLEANER JOINT LEVER

Fig. 3-20

3. Remove the two Ⓐ screws then remove the TAPE GUIDE HOLDER PART.
4. After replacement, reassemble in the reverse order for installation. When reattaching the TAPE GUIDE HOLDER, insert the pin of the CLEANER JOINT LEVER into the hole on the REVIEW ARM.

3-4-5. Removal of the CAPSTAN MOTOR BLOCK

1. Remove the EJECTOR BLOCK (refer to 3-4-3).
2. Remove the TAPE GUIDE HOLDER BLOCK (refer to 3-4-4, 3).
3. Remove the Ⓐ screw and remove the CAPSTAN MOTOR as shown in Fig. 3-21.

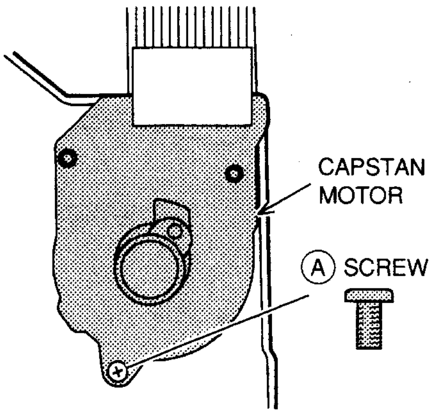

CAPSTAN MOTOR
Ⓐ SCREW

Fig. 3-21

4. Reassemble in the reverse order for installation.

3-4-6. Removal of the PINCH ROLLER BLOCK

1. Remove the EJECTOR BLOCK (refer to 3-4-3).
2. Remove the Ⓐ screw and remove the PINCH ROLLER BLOCK by pulling it up.

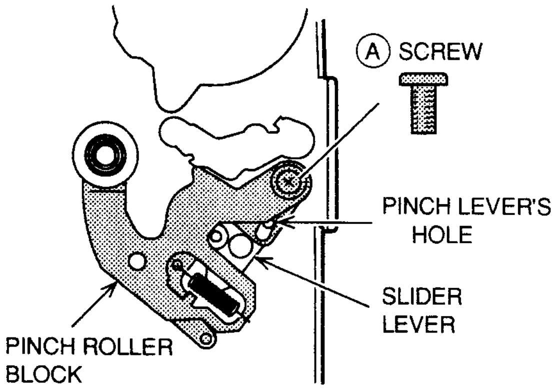

Ⓐ SCREW
PINCH LEVER'S HOLE
SLIDER LEVER
PINCH ROLLER BLOCK

Fig. 3-22

3. When installing, make sure to align the SLIDER LEVER's pin with the hole on the PINCH LEVER as shown in Fig. 3-22.

3-4-7. Removal of the (T) REEL PART

1. Remove the EJECTOR BLOCK and PINCH ROLLER BLOCK (refer to 3-4-3 and 3-4-6).
2. Remove the two BRAKE GUIDE retaining Ⓐ screws.

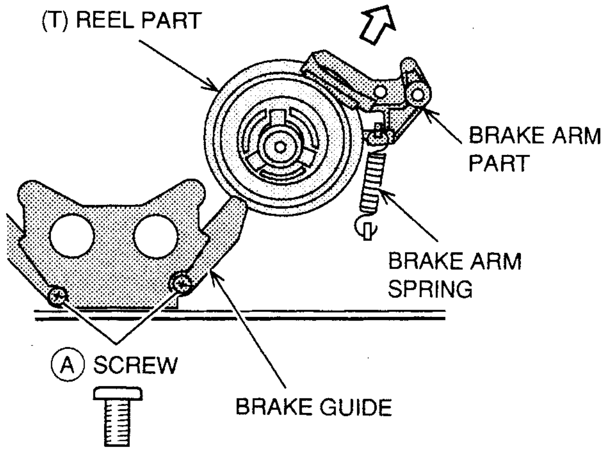

(T) REEL PART
BRAKE ARM PART
BRAKE ARM SPRING
Ⓐ SCREW
BRAKE GUIDE

Fig. 3-23

3. Unhook the BRAKE ARM SPRING then move the BRAKE ARM PART in the direction of the arrow and pull it up, taking care when removing it.
4. Remove the (T) REEL PART from its shaft.
5. Reassemble in the reverse order for installation.

3-4-8. Removal of the (S) REEL PART and TENSION BLOCK

1. Remove the EJECTOR BLOCK (refer to 3-4-3).
2. Remove the Ⓐ screw and remove the BAND GUIDE.

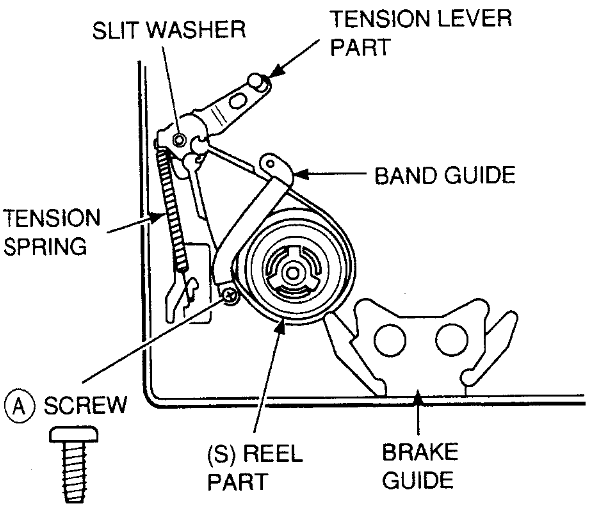

SLIT WASHER
TENSION LEVER PART
BAND GUIDE
TENSION SPRING
Ⓐ SCREW
(S) REEL PART
BRAKE GUIDE

Fig. 3-24

3. Remove the BRAKE GUIDE then remove the (S) REEL PART from its shaft taking care not to damage the TENSION SHEET.
4. Remove the slit washer on the TENSION LEVER PART and unhook the TENSION SPRING then remove the TENSION BLOCK.
5. Reassemble in the reverse order for installation.

3-4-9. Replacement of the SYNCHRO BELT

1. Remove the EJECTOR BLOCK (refer to 3-4-3).
2. Remove the CAPSTAN MOTOR BLOCK (refer to 3-4-5).
3. Remove the PINCH ROLLER BLOCK (refer to 3-4-6).
4. Remove the (T) REEL PART (refer to 3-4-7).
5. Remove the IDLER PART by pulling it up then remove the SYNCHRO BELT as shown in Fig. 3-25.

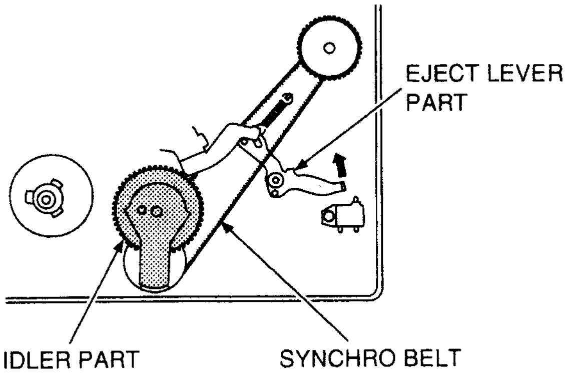

EJECT LEVER PART
IDLER PART
SYNCHRO BELT

Fig. 3-25

6. Reassemble in the reverse order for installation. When replacing a new SYNCHRO BELT, take care not to damage or scratch it.

3-4-10. Replacement of the LOADING MOTOR

1. Remove the EJECTOR BLOCK (refer to 3-4-3).
2. Unsolder the two red and white wires from the flexible PCB.

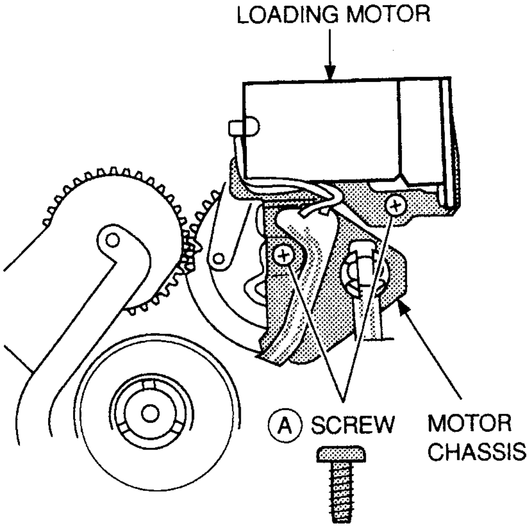

LOADING MOTOR
Ⓐ SCREW
MOTOR CHASSIS

Fig. 3-26

3. Remove the two Ⓐ screws which retain the MOTOR CHASSIS as shown in Fig. 3-26.
4. Remove the two Ⓑ screws which retain the LOADING MOTOR and replace it with a new one as shown in Fig. 3-27.

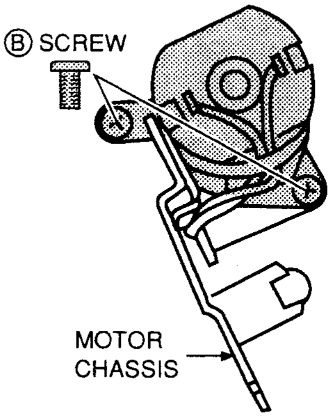

Ⓑ SCREW
MOTOR CHASSIS

Fig. 3-27

5. Reassemble them in the reverse order for installation. When reattaching the MOTOR CHASSIS on the MECHA. CHASSIS, take care not to loose the timing of the RELAY GEAR and TOGGLE GEAR as shown in Fig. 3-28 (refer to 3-4-11, steps 8 to 9 if necessary).

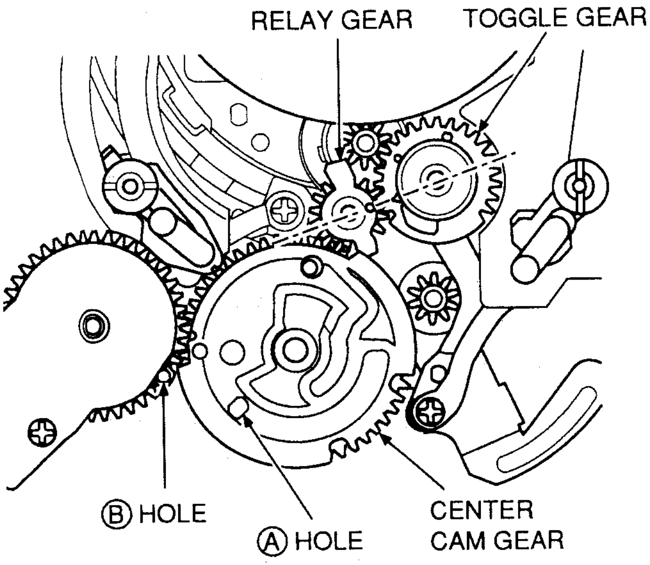


Fig. 3-28

When soldering the two wires, the black wire should be soldered on the right side (marked "B" on the flexible PCB).

3-4-11. Replacement of the MODE SWITCH

1. Remove the EJECTOR BLOCK (refer to 3-4-3).
2. Remove the BAND GUIDE and TENSION BLOCK (refer to 3-4-8, steps 2 & 4).
3. Remove the two MOTOR CHASSIS retaining screws (refer to 3-4-10, step 3)
4. Remove the RELAY GEAR and CENTER CAM GEAR by pulling them upwards as shown in Fig. 3-29.

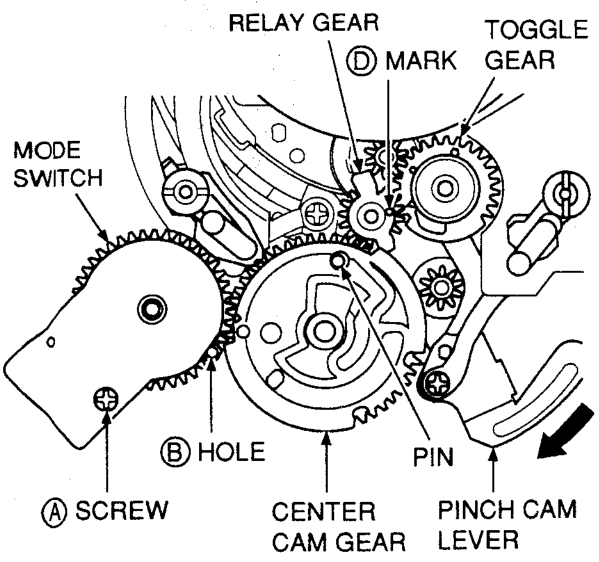


Fig. 3-29

5. Remove the Ⓐ screw which retains the MODE SWITCH and remove the MODE SWITCH carefully so as not to damage the flexible PCB as shown in Fig. 3-29.
6. Unsolder the MODE SWITCH and carefully peel it off from the flexible PCB .
7. Replace it with a new one and install it in the reverse order. When soldering the MODE SWITCH, take special care to place the MODE SWITCH in the correct position on the flexible PCB. And make sure that the MODE SWITCH's Ⓑ hole is aligned with its reference hole on the chassis and the hole on the SLIDER PLATE PART.
8. Place the CENTER CAM GEAR on the MECHA. CHASSIS. At this point, align the Ⓒ part (part with unbroken teeth) of the MODE SWITCH with the groove on the CENTER CAM GEAR as shown in Fig. 3-30.

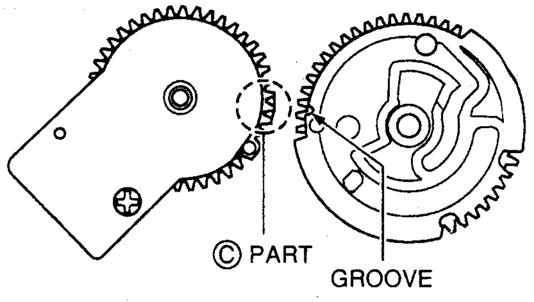


Fig. 3-30

And also move the PINCH CAM LEVER in the direction of the arrow and set it where the pin of the PINCH CAM LEVER is visible through the hole on the CENTER CAM GEAR as shown in Fig. 3-29.

9. Place the RELAY GEAR so that the Ⓓ mark on the RELAY GEAR is aligned with the " ◁ " mark on the TOGGLE GEAR as shown in Fig. 3-29.
10. Attach the MOTOR CHASSIS by tightening the two retaining screws.
11. Supply DC 4.5 V to the LOADING MOTOR and confirm that the loading mechanism operates properly in both the loading and unloading directions and each gear is correctly aligned.

NOTE:

Take care not to damage the flexible PCB near the MOTOR CHASSIS during this procedure.

3-4-12. Disassembling the loading mechanism

1. Remove the EJECTOR BLOCK and HEAD DRUM BLOCK (refer to 3-4-1 and 3-4-3).
2. Remove the CAPSTAN MOTOR BLOCK (refer to 3-4-5, 2 to 3).
3. Remove the PINCH ROLLER BLOCK (refer to 3-4-6, 2)
4. Remove the LOADING MOTOR BLOCK retaining screw (refer to 3-4-10, step 3).
5. Remove the Ⓐ screw which retains the SUPPLY LOADING LEADER PART as shown in Fig.3-31.

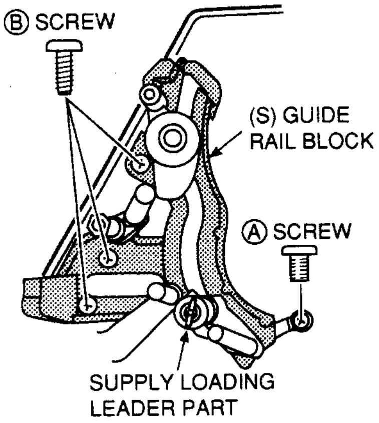

Ⓑ SCREW
(S) GUIDE RAIL BLOCK
Ⓐ SCREW
SUPPLY LOADING LEADER PART

Fig. 3-31

6. Remove the three Ⓑ screws then remove the (S) GUIDE RAIL BLOCK as shown in Fig. 3-31.
7. Remove the Ⓒ screw which retains the (T) GUIDE RAIL as shown in Fig.3-32.

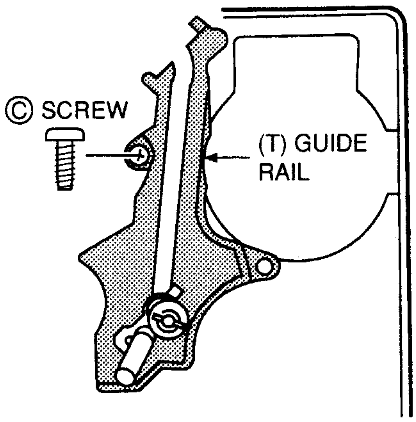
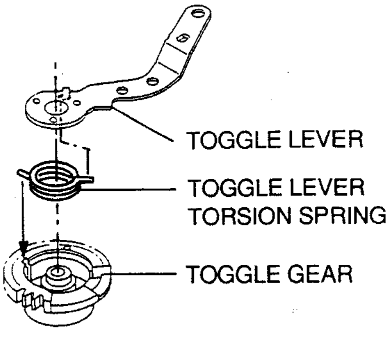

Ⓒ SCREW
(T) GUIDE RAIL

Fig. 3-32

8. Then remove the RELAY GEAR and TOGGLE GEAR BLOCK (TOGGLE GEAR, TOGGLE LEVER and TOGGLE LEVER TORSION SPRING) with the TAKE UP LOADING LEADER PART, take care not to lose the TOGGLE LEVER TORSION SPRING as it may jump free.


TOGGLE LEVER
TOGGLE LEVER TORSION SPRING
TOGGLE GEAR

TOGGLE GEAR BLOCK

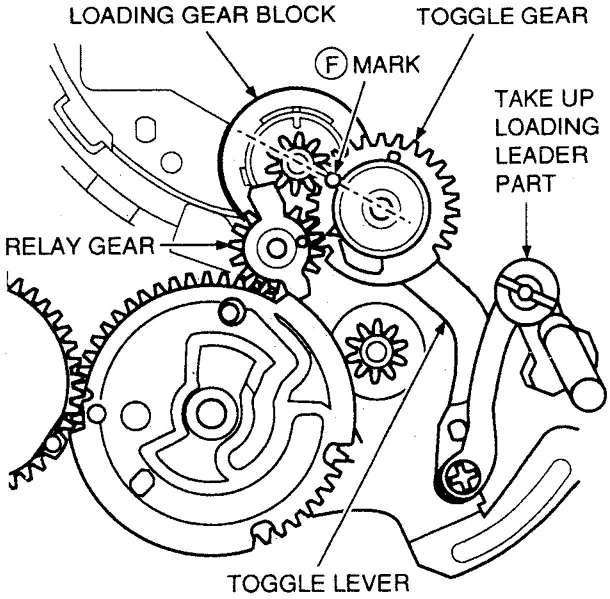

LOADING GEAR BLOCK
TOGGLE GEAR
Ⓕ MARK
TAKE UP LOADING LEADER PART
RELAY GEAR
TOGGLE LEVER

Fig. 3-33

9. Remove the two Ⓓ screws then remove the GEAR PLATE PART as shown in Fig. 3-34.

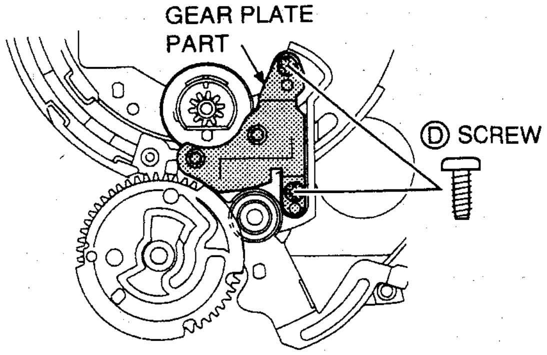
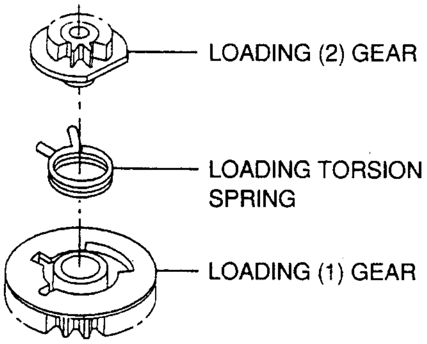

GEAR PLATE PART
Ⓓ SCREW

Fig. 3-34

10. Remove the LOADING GEAR BLOCK (LOADING (1) GEAR, LOADING (2) GEAR and LOADING TORSION SPRING) and slide the RING SLIDER in the clockwise direction to remove the RING SLIDER from the RING HOLDER as shown in Fig. 3-35. Then remove the RING HOLDER and replace it if necessary.



LOADING GEAR BLOCK

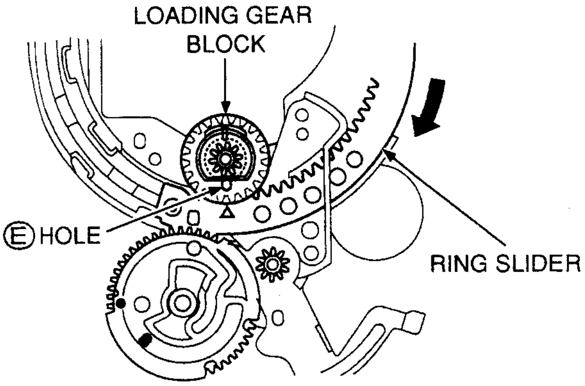


Fig. 3-35

11. To reassemble these parts, proceed in the reverse order of step 1 to 10.
    When reassembling parts concerned with the MODE SWITCH's timing, proceed with special care.

1) When placing the LOADING GEAR BLOCK on the MECHA. CHASSIS, both the LOADING GEAR BLOCK's Ⓔ hole and RING SLIDER's △ mark should be aligned with their reference hole on the MECHA. CHASSIS as shown in Fig. 3-35.
2) When placing the TOGGLE GEAR BLOCK, the TOGGLE GEAR BLOCK's Ⓕ mark should be aligned with the LOADING GEAR BLOCK's shaft as shown in Fig. 3-33.
3) When placing the RELAY GEAR, the RELAY GEAR's Ⓓ mark must be aligned with the ◁ mark of the TOGGLE GEAR (refer to 3-4-11, step 9). At this point confirm that the Ⓒ part (the part with unbroken teeth) of the MODE SWITCH is aligned with the groove on the CENTER CAM GEAR and the MODE SWITCH's Ⓑ hole is aligned with its reference hole on the CHASSIS and the hole of the SLIDER PLATE (refer to Fig. 3-30 and 3-29).

IV. MECHANICAL ADJUSTMENT

4-1.BACK TENSION

1. Play back a CASSETTE TORQUE METER TW-6111 (AJ-729749J) and confirm that the reading of the SUPPLY REEL on the meter is 6.5 to 9 g-cm.
2. If the result is not satisfactory, loosen the Ⓐ screw and adjust the TB HOLDER position repeatedly until the result is satisfactory.

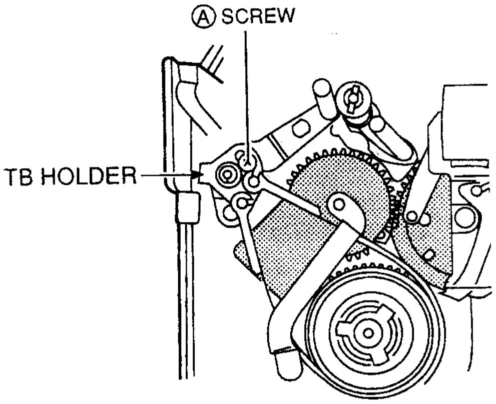


Fig. 4-1

3. The fluctuation of the reading during playback, should be less than 2 g-cm.
   If the result is not satisfactory, check the (S) REEL PART.

4-2.TAPE TRANSPORT ADJUSTMENT

NOTE:

1. The following adjustments are required only when an irregularity is found since these adjustments are precisely corrected at the factory.
2. When the HEAD DRUM BLOCK is replaced, perform only step 4-2-3, loading leader height adjustment.
3. Remove the CAMERA BLOCK first before making the adjustment and set the unit to the TEST mode 02 (refer to the information section on page 5).

4-2-1. REVIEW ARM height adjustment

1. Play back a recorded tape which is no longer needed.
2. Check the tape transport near the REVIEW ARM TAPE GUIDE. If it is not satisfactorily, turn the Ⓐ nut on the REVIEW ARM TAPE GUIDE until the edge of the tape barely touches the lower part of the TAPE GUIDE without any curl or wrinkle.

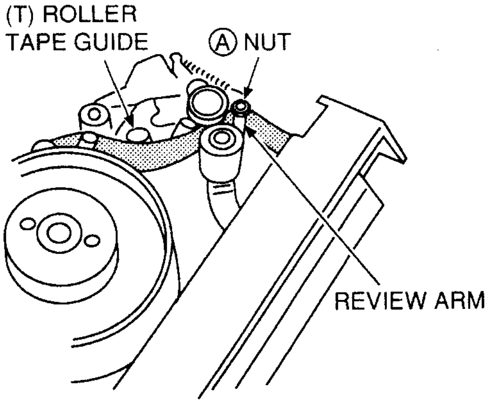


Fig. 4-2

3. Confirm that there is no curl or wrinkle between the PINCH ROLLER and REVIEW ARM TAPE GUIDE.

4-2-2. SUPPLY TAPE GUIDE height adjustment

1. Play back a recorded tape which is no longer needed and set the unit to the REVIEW mode.
2. Check the tape transport near the SUPPLY TAPE GUIDE. If it is not satisfactorily, turn the Ⓑ nut on the SUPPLY TAPE GUIDE until there is no curl or wrinkle near the SUPPLY TAPE GUIDE.

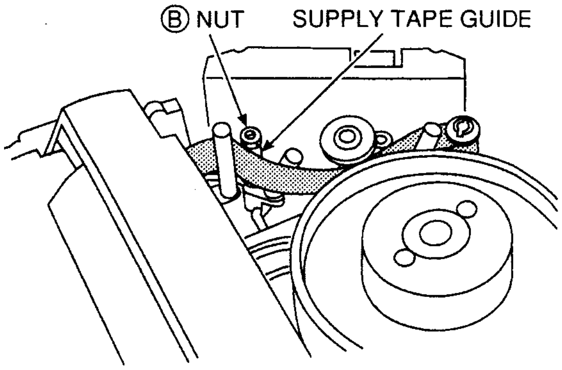


Fig. 4-3

3. Confirm that there is no curl or wrinkle between the (T) ROLLER TAPE GUIDE and REVIEW ARM TAPE GUIDE as shown in Fig. 4-2.
4. If the result is not satisfactory, readjust the REVIEW ARM TAPE GUIDE and SUPPLY TAPE GUIDE height.

4-2-3. LOADING LEADER height adjustment

1. Slightly loosen the set screws on the lower part of both the LOADING LEADER (T) PART and (S) PART with a hexagon screw driver, so that the tape guide can be adjusted with reasonable tightness.

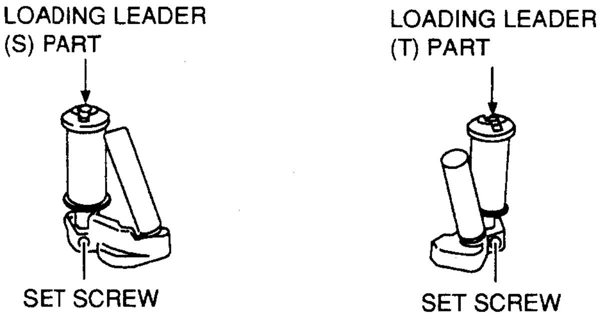

LOADING LEADER
(S) PART
SET SCREW
LOADING LEADER
(T) PART
SET SCREW

Fig. 4-4

2. Connect an oscilloscope's CH-1 to TERMINAL PCB P27 ① pin (PB ENVE) and CH-2 to ② pin (SWP) for triggering.
3. Play back the reference tape TF-200RFS (AT-751834J).
4. Turn the LOADING LEADER (T) and (S) head individually to obtain a flat RF envelope, as the ideal envelope shown in Fig. 4-5.
5. Play back the reference tape TF-201RFL (AT-751835J) then finely adjust both the LOADING LEADERs to obtain the best RF envelope.
6. Set the unit to the TEST mode 11 (refer to the information section) and press the WHITE BALANCE button and confirm that the RF envelope shares about 2/3 of the switching pulse width (including PCM zone) and also the fluctuating envelope's upper and lower edge is almost flat.

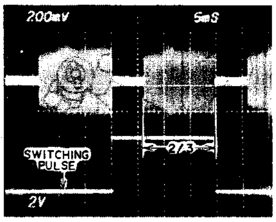


Fig. 4-6

7. After the adjustment is completed, tighten both the set screws with the hexagonal screw driver
8. In case the result is not satisfactory, repeat the adjustment from 4-2-1 to 4-2-3, step 5.

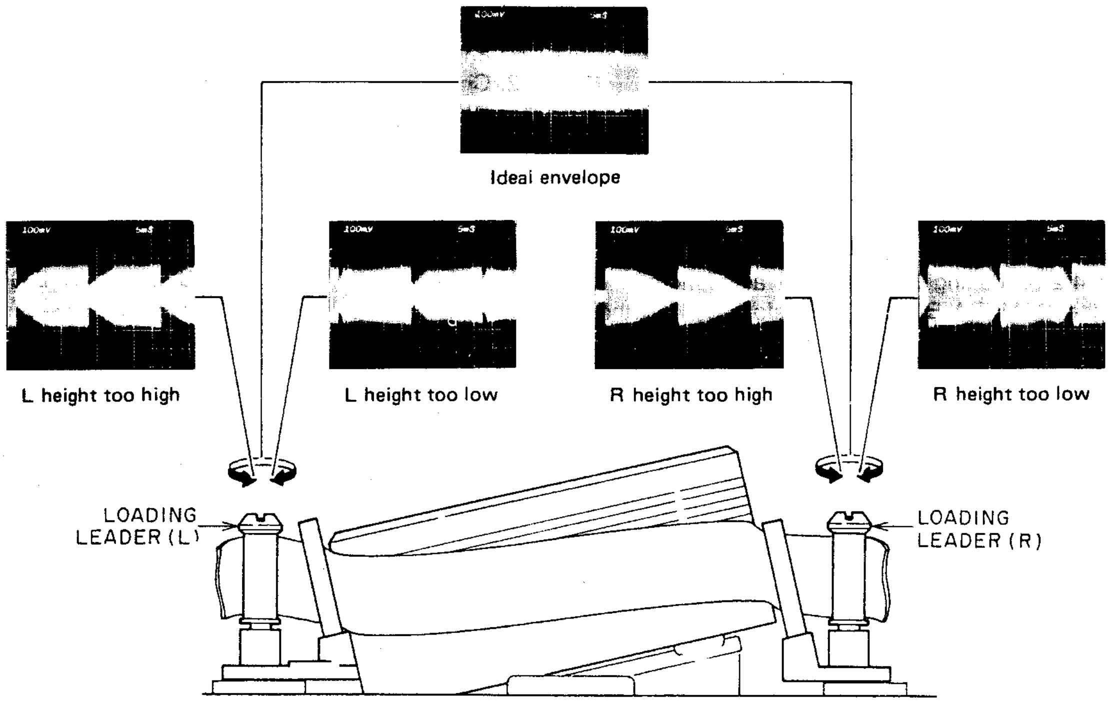

Ideal envelope
L height too high
L height too low
R height too high
R height too low
LOADING LEADER (L)
LOADING LEADER (R)

Fig. 4-5

V. ELECTRICAL ADJUSTMENT

Precautionary items prior to adjustments.

1. The video output terminal should be terminated with 75 ohms (connect a dummy load or 75 ohms input TV).
2. Some adjustments should be performed in the "TEST MODE". Refer to the "INFORMATION" section on page 5.
3. When adjusting the MAIN PCB (VTR section), Connect a colour bar generator to the TERMINAL PCB which should be supplied as a servicing jig.
4. When adjusting the CAMERA section, the TERMINAL PCB is necessary as well as the MAIN PCB adjustment.
5. Some adjustments require the MAIN PCB to be turned over and extension cables to be connected. (5-2-1, step 3 and 5-2-2, step 1 & 2).

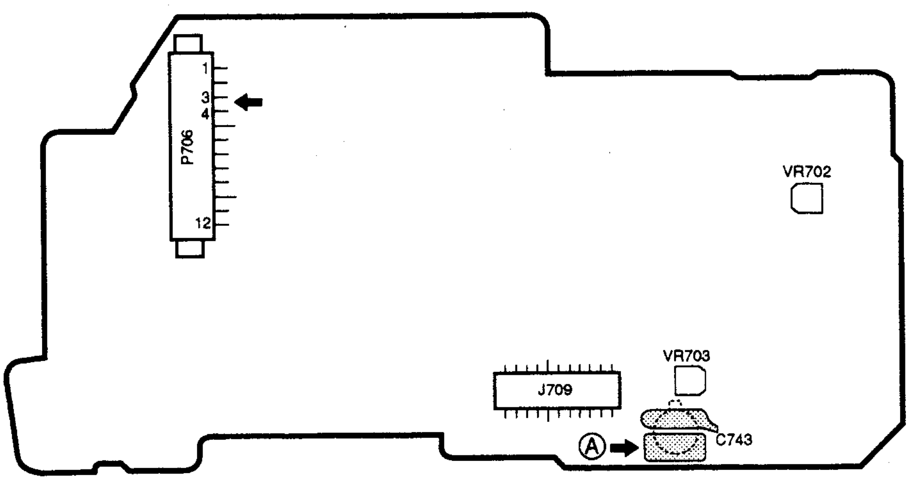
The following test tapes are required

Test tape	Part No.
TF-200RFS	AT-751834J
TF-201RFL	AT-751835J
TF-202CBS	AT-751836J
TF-203CBL	AT-751837J
TF-250AT	AT-751833J

5-1.POWER SUPPLY PCB

Note:

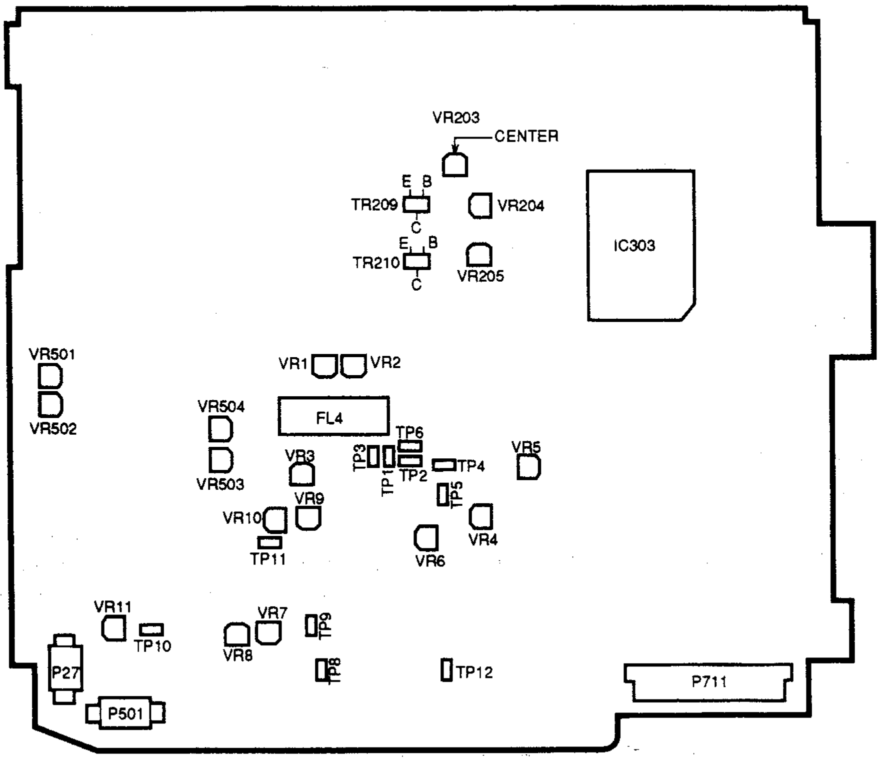
Check that there is no power supplied to the unit before making adjustment. Then detach the POWER SUPPLY PCB from the MAIN PCB and remove the shield cover with a soldering iron. Connect the MAIN PCB P309 and POWER SUPPLY PCB J709 with the extension cable. Then supply power to the unit and slide the power switch to the "CAMERA" position.



POWER SUPPLY PCB (TOP VIEW)

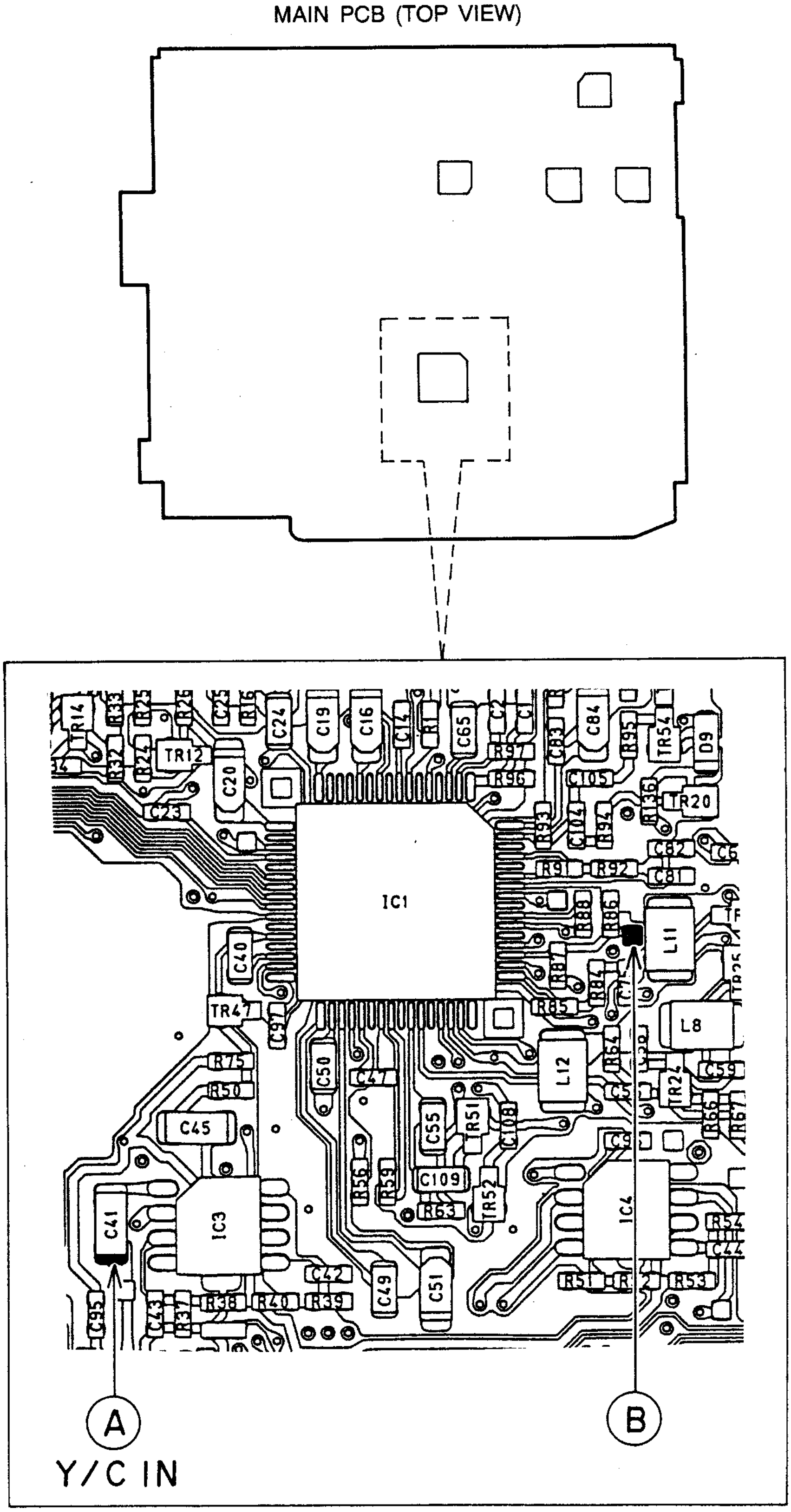
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
1	AL 5V	-	CAMERA ON	Pattern (shown Ⓐ arrow)	VR703	Connect a digital DC voltmeter to point Ⓐ (where the C743 positive lead is soldered) then adjust VR703 so that the reading on the meter is 4.90 ± 0.02 V.
2	CAMERA 5V	-	CAMERA ON	P706 ③ or ④ pin	VR702	Connect a digital DC voltmeter to the P706 ③ or ④ pin then adjust the VR702 so that the reading on the meter is 4.78 ± 0.03 V.

5-2. MAIN PCB


VR203
CENTER
E
B
TR209
C
VR204
IC303
E
B
TR210
C
VR205
VR501
VR502
VR1
VR2
VR504
FL4
TP6
TP3
TP1
TP2
TP4
VR5
VR3
VR503
TP5
VR9
VR10
TP11
VR4
VR6
VR11
TP10
VR7
TP9
VR8
P27
TP8
TP12
P711
P501

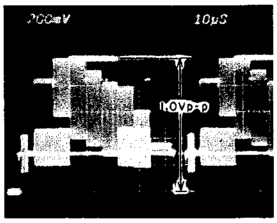
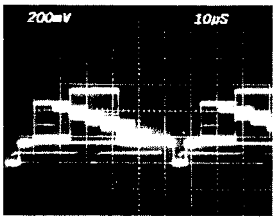
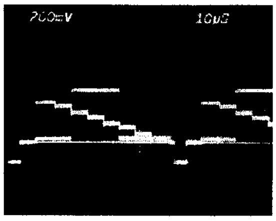
MAIN PCB (BOTTOM VIEW)

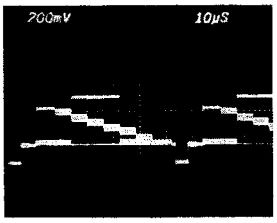
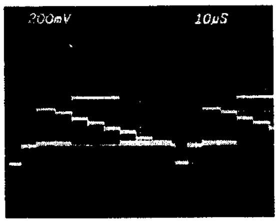
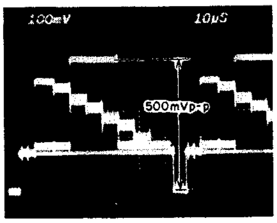
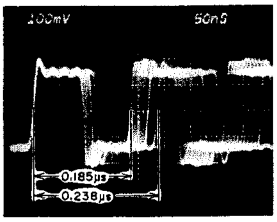
5-2-1. VIDEO ADJUSTMENT

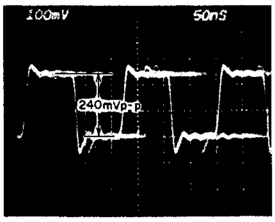
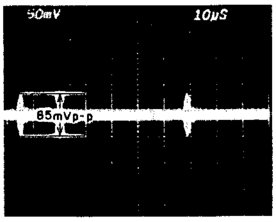
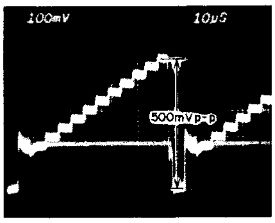

MAIN PCB (TOP VIEW)
IC1
IC3
IC4
TR12
TR14
TR20
TR24
TR47
TR54
C16
C19
C20
C23
C24
C40
C41
C42
C43
C45
C49
C50
C51
C55
C65
C81
C82
C84
C95
C97
C104
C105
C108
C109
R9
R32
R37
R38
R39
R40
R50
R51
R52
R53
R56
R59
R63
R64
R66
R67
R75
R85
R86
R87
R88
R91
R92
R93
R94
R95
R96
R97
R136
L8
L11
L12
D9
Ⓐ
Ⓑ
Y/C IN

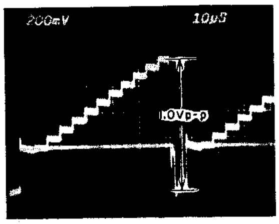
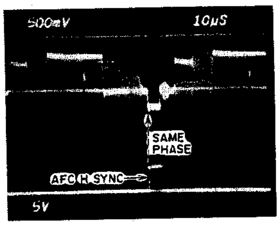
Note:

1. Solder the Y/C OUT lead wire from the TERMINAL PCB to point Ⓐ before making the adjustment.
2. Supply 3.0 to 4.0 volts to point Ⓑ when adjusting step 3) (I REFERENCE adj).
3. If the REC → PB picture quality is not satisfactory even if the REC CURRENT adjustment has been performed, damagnetize the rotary heads and try again.

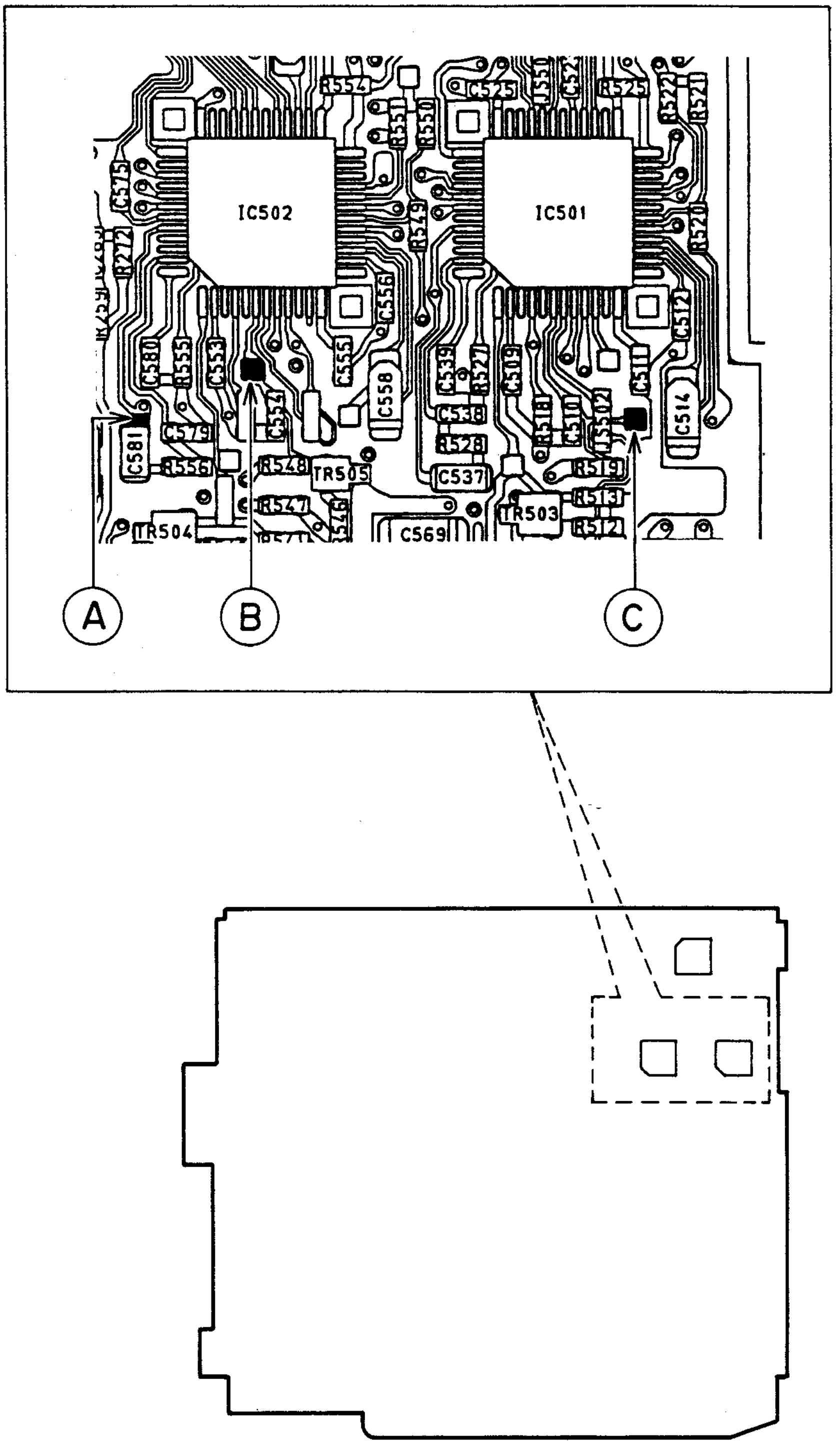
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
1	VIDEO AGC	PAL colour bar signal	CAMERA EE & TEST mode 02	TP8 (with 75 ohms termination)	VR6	 Solder the Y/C out lead wire to the appropriate point as shown on page 29 then supply the PAL colour bar signal. Connect an oscilloscope to TP8 and adjust VR6 so that the VIDEO level is 1.0 Vp-p.
2	Y/C COMB FILTER	PAL colour bar signal	CAMERA EE & TEST mode 04	TP2	VR5 & VR4	 INCORRECT  CORRECT Supply the colour bar signal (the same as step1) and connect an oscilloscope to TP2. Press the "COUNTER RESET" button and adjust VR5 and VR4 alternately so that the chroma level is minimum.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
3	I REFERENCE	PAL colour bar signal	CAMERA EE & TEST mode 04	TP1	VR3	 INCORRECT  CORRECT Supply the colour bar signal (the same as step1) and connect an oscilloscope to TP1. Supply 3 to 4 volts to the Ⓑ point (IC1 (51) pin, SWP) as shown on page 29 so that output of TP1 disappears. Press the "COUNTER RESET" button to resume output on TP1. Then adjust VR3 so that the chroma level is minimum.
4	Y EMPHASIS	PAL colour bar signal	CAMERA EE & TEST mode 02	TP3	VR1	 Supply the same colour bar signal as step1. Connect an oscilloscope to TP3 and adjust VR1 so that the Y level is 500 mVp-p.
5	FM CARRIER & DEVIATION	Stair step signal	CAMERA EE & TEST mode 02	TP9	VR10 & VR9	 Supply the stair step signal in the same way as step1. Connect an oscilloscope to TP9 and adjust VR10 so that the sync tip becomes 0.238 μs (4.2 MHz). Adjust VR9 so that the white peak becomes 0.185 μs (5.4 MHz). Adjust the VR10 and VR9 alternately until the result is satisfactory.

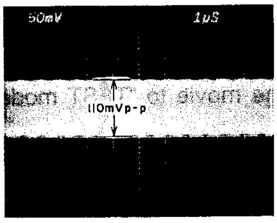
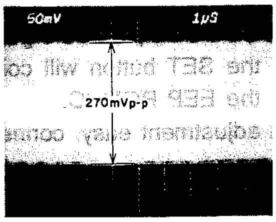
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
6	VIDEO REC CURRENT	-	CAMERA REC & TEST mode 11	TP9 & VR203 (center)	VR7 & VR203	Disconnect the Y/C IN wire at point Ⓐ and connect the CAMERA BLOCK. Set the unit to TEST mode 11 and press the FADER button to choose WHITE FADE mode. Connect an oscilloscope to TP9 and adjust VR7 (Y REC CURRENT) so that the Y REC CURRENT is 240 mVp-p.  REC Y Connect CH-1 of the oscilloscope to VR203 center lead and CH-2 to VIDEO OUT or fH/2 for triggering. Adjust VR203 so that the CHROMA REC CURRENT is 85 mVp-p at the burst signal area as shown.  REC CHROMA Press the FADER button to resume the normal camera mode and make a recording on the blank tape then play it back to check the picture quality. If it is not satisfactory, damagnetize the rotary heads and check the recording quality again.
7	PB Y LEVEL.1	TEST TAPE TF-200RFS	VTR PB	TP6	VR8	 Connect an oscilloscope to TP6 and adjust VR8 so that the Y level is 500 mVp-p.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
8	PB Y LEVEL 2	TEST TAPE TF-200RFS	VTR PB	TP8 (with 75 ohms termination)	VR2	 Connect an oscilloscope to TP8 and adjust VR2 so that the Y level is 1.0 Vp-p.
9	SKEW H PHASE	TEST TAPE TF-200RFS	VTR PB (CUE or REVIEW)	TP8 & TP12	VR11	 Connect CH-1 of an oscilloscope to TP8 and CH-2 to TP12. Adjust VR11 (AFC H PHASE) so that the leading edge of the AFC H sync aligns with the leading edge of the VIDEO OUT's H sync.

5-2-2. AUDIO & SERVO ADJUSTMENT


IC502
IC501
R554
C525
R525
R522
R521
R551
R550
C575
R549
R520
R272
C556
C512
C580
R555
C553
C555
C558
C539
R527
C509
C511
C514
C554
C538
R518
R510
R502
C579
R528
C581
R556
R548
TR505
C537
R519
R547
R513
TR503
R512
TR504
C569
A
B
C

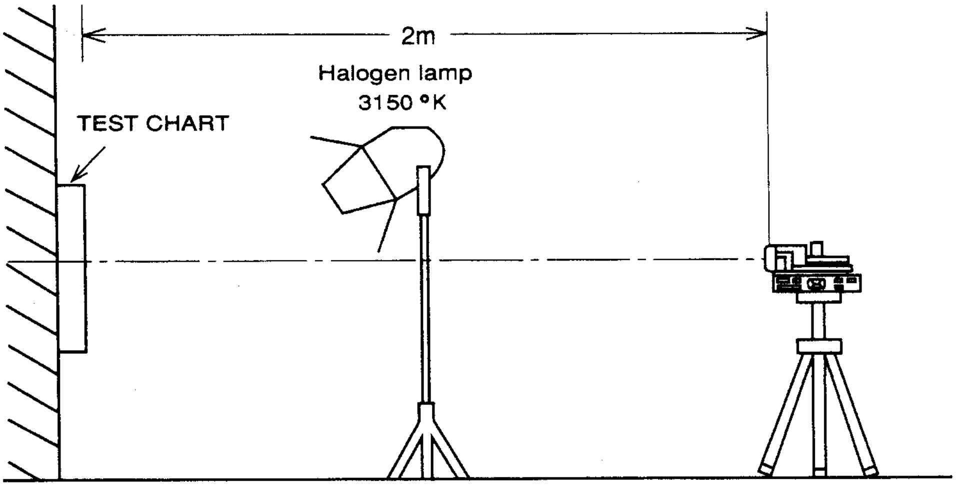
MAIN PCB (TOP VIEW)

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
1	Io (1.5 MHz)	Test tape TF-200RFS	PB & audio mode: stereo (PV-M4)	IC501 ㊹ pin (test point Ⓐ) & ⑥ pin (test point Ⓒ)	VR502	Play back the test tape TF-200RFS. Read the V REF voltage at point Ⓐ (the voltage should be about 2.1 V) with a digital DC voltmeter. Then connect a digital DC voltmeter to point Ⓒ and adjust VR502 so that the voltage is exactly the same as V REF voltage.
2	Io (1.7 MHz) (PV-M4 only)	Test tape TF-200RFS	PB & audio mode: stereo	IC502 ㊹ pin (test point Ⓐ) & ⑥ pin (test point Ⓑ)	VR503	Play back the test tape TF-200RFS. Read the V REF voltage at point Ⓐ (the voltage should be about 2.1 V) with a digital DC voltmeter. Then connect a digital DC voltmeter to the point Ⓑ and adjust VR503 so that the voltage is exactly the same as V REF voltage.
3	L+R DEV	TEST TAPE TF-203CBL	PB & audio: L-CH only	LINE OUT	VR501	Play back the test tape TF-203CBL. (PV-M4: Set the audio monitor to L-CH) Adjust VR501 so that the output level is − 7.5 dBs.
4	L−R DEV (PV-M4 only)	TEST TAPE TF-203CBL	PB & audio: R-CH only	LINE OUT	VR504	Play back the test tape TF-203CBL and set the audio monitor to R-CH. Adjust VR504 so that the output level is − 7.5 dBs.
5	A. FM REC CURRENT	-	CAMERA REC	TR209 (emitter)	VR204	 Connect an oscilloscope to the TR209 emitter lead and adjust VR204 so that the AUDIO FM REC CURRENT is 110 mVp-p, as shown.
6	ATF REC CURRENT	-	CAMERA REC	TR210 (emitter)	VR205	 Connect an oscilloscope to the TR210 emitter lead and adjust VR205 so that the ATF REC CURRENT is 270 mVp-p as shown.

5-3.CAMERA BLOCK ADJUSTMENT

5-3-1.STANDARD ADJUSTMENT

Standard setting for the CAMERA BLOCK adjustment

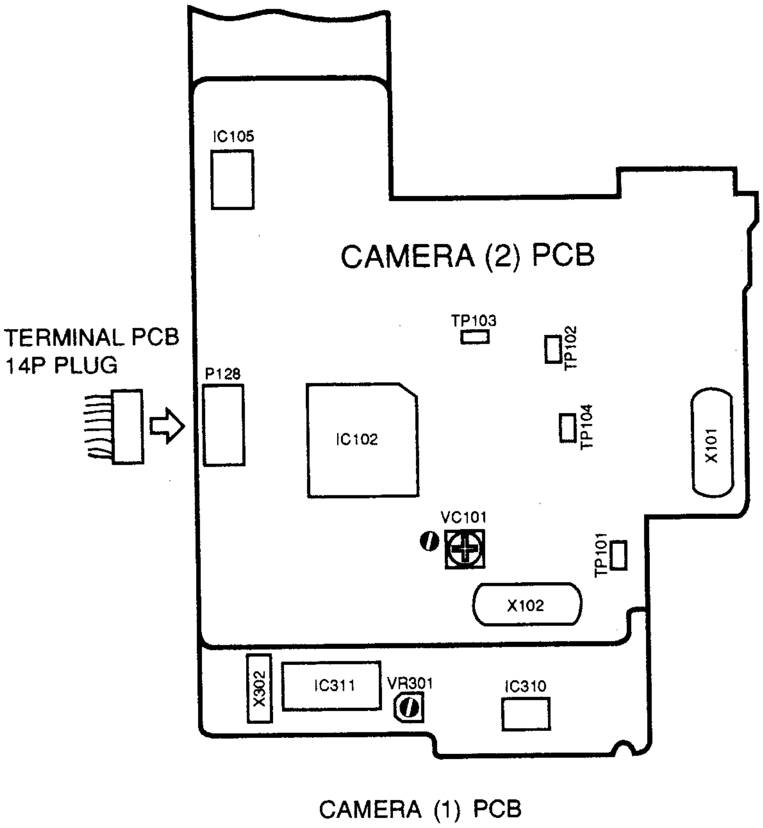


- Pattern: Reflection type, GREY SCALE or COLOUR BAR (we recommend the use of a light box with a transparent chart, instead of the relection type, and a halogen lamp)
- Light: 3150 ± 50 °K (colour temperature), 3500 ± 500 Lx (intensity)
- Distance between the pattern and lens: 2 m
- Waveform size: 40 µs (at stair step part or colour bar part) on the oscilloscope
- VECTOR SCOPE setting: 75 % saturation

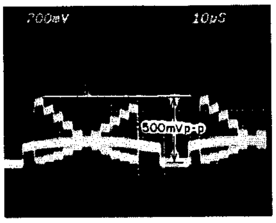
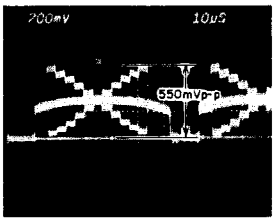
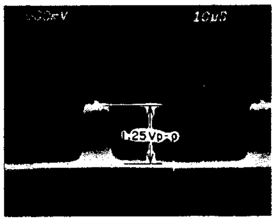
Note

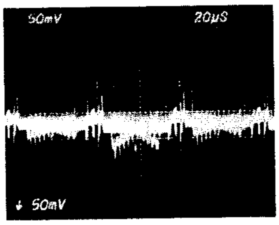
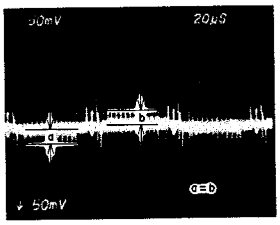
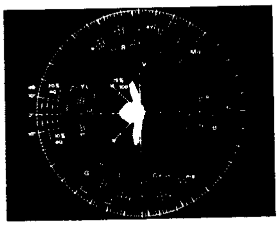
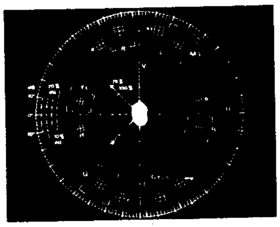
*Most of the camera adjustments should be performed in "TEST mode 81" using the micro computer and D/A converter equipped with this video movie.
To set the movie to "TEST mode 81", refer to the "TEST MODE" section in "INFORMATION" on page 5.

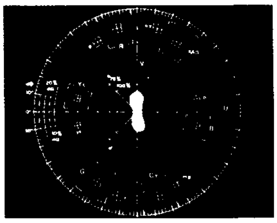
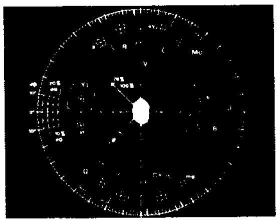
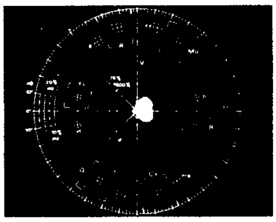
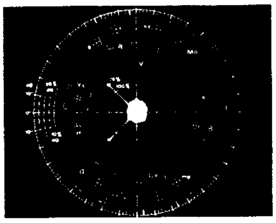
1. Engage TEST mode 81, a squid mark appears on the screen. Then press the "display" button. A number of numeral rows appear on the screen. The 2 digit number in the right upper corner is a preset number. (Make sure that the ELECTRIC VIEWFINDER is connected, to display the data on the screen.)
2. Start the adjustment from "No.00" (preset No.00) and each time you press the SET button or > button, you can proceed to the next preset number. Pressing the < button will return to the previous preset number.
   When proceeding to the next preset number without adjustment, never press the "SET" button, only use the > button.
3. Adjustment is possible by pressing the ∧ or ∨ buttons, and the data you are adjusting is displayed in hexadecimal numbers on the display during adjustment.
4. Pressing the SET button will conclude the adjustment in each preset number. Adjusted data will be memorized and stored in the EEP ROM IC.
5. To make adjustment easy, connect CH-2 of an oscilloscope to the TERMINAL PCB P128 ① pin (1/2 fH) for triggering in most cases.

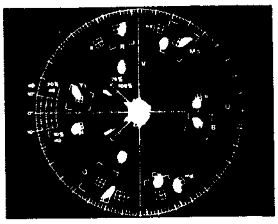
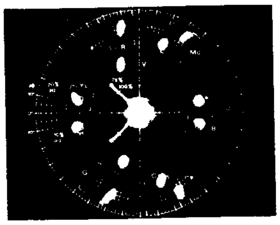
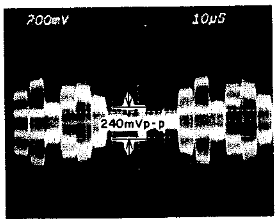
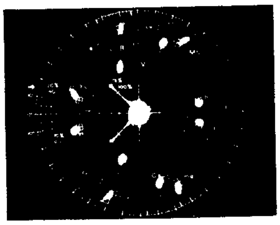

IC105
CAMERA (2) PCB
TERMINAL PCB
14P PLUG
P128
TP103
TP102
IC102
TP104
X101
VC101
TP101
X102
X302
IC311
VR301
IC310
CAMERA (1) PCB

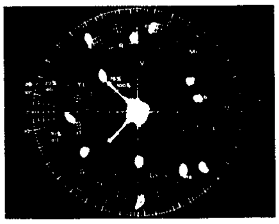
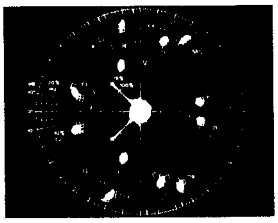
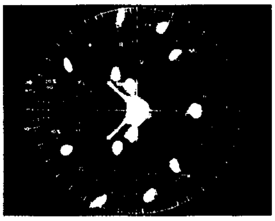
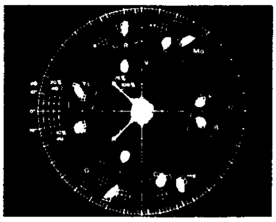
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
1	fsc	-	EE, "PRESET No.00"	TP101 (CAMERA (2) PCB)	VC101	Connect a digital DC voltmeter to TP101. Adjust VC101 so that the reading on the meter is 2.2 ± 0.1 V. (Pressing the "SET" button will skip "PRESET No.01" and proceed to "PRESET No.02" automatically.)
2	HALL AMP OFF-SET.1	-	EE, "PRESET No.00"	-	-	Press the "SET" button.
3	HALL AMP OFF-SET.2	-	EE, "PRESET No.01"	-	-	No operation.
4	øR OFF-SET	-	EE, "PRESET No.02"	TV SCREEN	∧ or ∨ button	If a white line appears on the left side of the screen, press the cursor button until the line disappears and press the "SET" button. (Unless the white line is on the screen, adjustment is not necessary. Simply press the "SET" button.)
5	CDS LEVEL (IRIS close)	-	EE, "PRESET No.03"	TERMINAL PCB P128 ⑬ pin (IRIS LEVEL)	VR301	Connect a digital DC voltmeter to the TERMINAL PCB P128 ⑬ pin and adjust VR301 so that the voltage is DC 0.45±0.05V. Then press the "SET" button. (Pressing the "SET" button will skip "PRESET No.04 and No.05" and proceed to "PRESET No.06" automatically.)

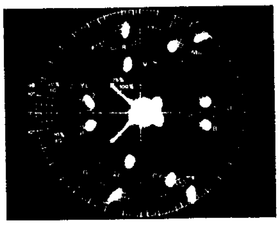
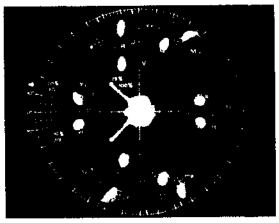
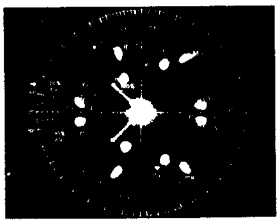
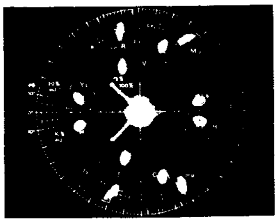
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
6	IRIS CONTROL VOLTAGE (IRIS close)	-	EE, "PRESET No.04"	-	-	No operation.
7	IRIS LEVEL (IRIS open)	-	EE, "PRESET No.05"	-	-	No operation.
8	CDS LEVEL	GREY SCALE CHART	EE, "PRESET No.06"	TERMINAL PCB P128 ⑦ pin (CDS 4)	∧ or ∨ button	 Connect an oscilloscope to the TERMINAL PCB P128 ⑦ pin. Adjust one of the cursor buttons so that the CDS level becomes 500 mVp-p. Then press the "SET" button.
9	IRIS LEVEL CHECK	GREY SCALE CHART	EE, "PRESET No.05"	TERMINAL PCB P128 ⑬ pin (IRIS LEVEL)	-	Connect an oscilloscope to the TERMINAL PCB P128 ⑬ pin. Press the < button and go back to "PRESET No.05". Adjust the camera zoom so that the stair step waveform part is 40 μs width. Confirm that the IRIS LEVEL is DC 4.2 ± 0.2 V.
10	Y. AGC LEVEL	GRAY SCALE CHART	EE, "PRESET No.07"	TERMINAL PCB P128 ⑩ pin (AGC OUT)	∧ or ∨ button	 Connect an oscilloscope to the TERMINAL PCB P128 ⑩ pin. Adjust one of the cursor buttons so that the Y. AGC LEVEL is 550 mVp-p. Then press the SET button.
11	V sub	Spotlight	EE, "PRESET No.08"	TERMINAL PCB P128 ⑦ pin (CDS 4)	∧ or ∨ button	 Connect an oscilloscope to the TERMINAL PCB P128 ⑦ pin and shoot a very blight object, like a spotlight. Adjust one of the cursor buttons so that the voltage of the shoulder part of the waveform is 1.25 V and the smear is minimum. Then press the "SET" button.

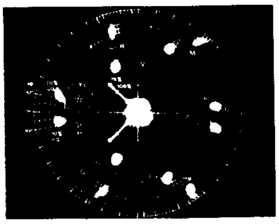
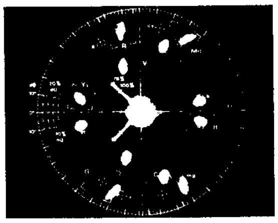
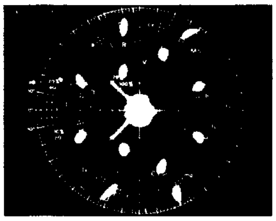
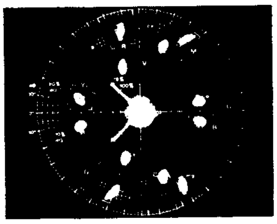
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
12	Cyan 1 GAIN	GRAY SCALE CHART	EE, "PRESET No.09"	TERMINAL PCB P128 ④ pin (CY) & ⑥ pin (CY 1)	∧ or ∨ button	 INCORRECT  CORRECT Connect CH-1 of an oscilloscope to the TERMINAL PCB P128 ④ pin (CY) & CH-2 to ⑥ pin (CY 1). Set the oscilloscope's display mode to "ADD" and CH-2 polarity to "INVERTED". Press one of the cursor buttons so that "a" level is equal to "b" level between each adjacent H period. Then press the "SET" button.
13	Yellow 1 GAIN	GRAY SCALE CHART	EE, "PRESET No.0A"	VIDEO OUT & TERMINAL PCB P128 ③ pin (YE), ⑤ pin (YE 1)	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to the VIDEO OUT and press the cursor button until the vibration of the center part is minimum. Then connect CH-1 of an oscilloscope to the TERMINAL PCB P128 ③ pin (YE) and CH-2 to ⑤ pin (YE 1). Set the oscilloscope's display mode to "ADD" and CH-2 to "INVERTED". Confirm that the "a" level is equal to "b" level the same as in step 12, in each adjacent H period. Then press the "SET" button.

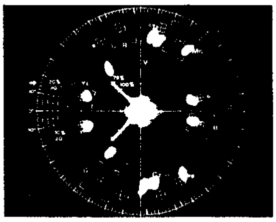
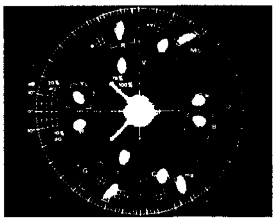
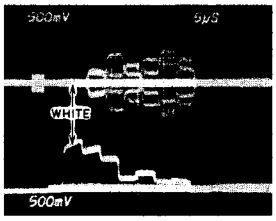
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
14	R-Y CARRIER BALANCE	-	EE, "PRESET No.0B"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT. Press the cursor button so that the two separated spots become one spot and are positioned in the center of the scale (will move up and down). Then press the "SET" button.
15	B-Y CARRIER BALANCE	-	EE, "PRESET No. 0C"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT. Press the cursor button so that the center spot is positioned in the center of the scale (will move left and right). Then press the "SET" button.

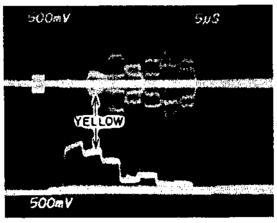
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
16	BURST PHASE	COLOUR BAR CHART	EE, "PRESET No.0D"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter on the lens. Press the cursor button so that the correct burst angle is obtained. Press the "SET" button.
17	BURST LEVEL	COLOUR BAR CHART	EE, "PRESET No. 0E"	VIDEO OUT & TERMINAL PCB P128 ⑭ pin (C. OUT)	∧ or ∨ button	 Connect an oscilloscope to the TERMINAL PCB P128 ⑭ pin (C.OUT) and mount a C-9 filter on the lens. Press the cursor button so that the burst level is 240 mVp-p as shown. Then press the "SET" button.  **Note:** Connect a vector scope to the VIDEO OUT and set the vector scope gain so that the burst signal level is exactly on the 75 % scale. Proceed the adjustment with this setting hereafter.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
18	HUE	COLOUR BAR CHART	EE, "PRESET No. 0F"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions. Then press the "SET" button.
19	R-Y WHITE BALANCE (4500 °K)	COLOUR BAR CHART	EE, "PRESET No. 10"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter (4500 °K colour temperature adjustment) on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move up or down). Then press the "SET" button.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
20	B-Y WHITE BALANCE (4500 °K)	COLOUR BAR CHART	EE, "PRESET No.11"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move left or right). Then press the "SET" button.
21	R-Y LEVEL (4500 °K)	COLOUR BAR CHART	EE, "PRESET No.12"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the "SET" button.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
22	B–Y LEVEL (4500 °K)	COLOUR BAR CHART	EE, "PRESET No.13"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the "SET" button.
23	R–Y MATRIX (4500 °K)	COLOUR BAR CHART	EE, "PRESET No.14"	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the "SET" button.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
24	B–Y MATRIX (4500 °K)	COLOUR BAR CHART	EE, “PRESET No-15”	VIDEO OUT	∧ or ∨ button	 INCORRECT  CORRECT Connect a vector scope to VIDEO OUT and mount a C-9 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the “SET” button.
25	HIGH CLIP	COLOUR BAR CHART	EE, “PRESET No.16”	TERMINAL PCB P128 ⑦ pin (CDS4) & ⑭ pin (C.OUT)	∧ or ∨ button	 Connect CH-1 of an oscilloscope to the TERMINAL PCB P128 ⑦ pin (CDS4), CH-2 to ⑭ pin (C.OUT) and mount a C-9 filter on the lens. Zooming the lens to the wide position so that the yellow part level of the CDS4 waveform is 800 mV. While observing the C.OUT waveform, press the cursor button until the carrier of the white part just disappears. Press the “SET” button when the adjustment is performed satisfactorily.

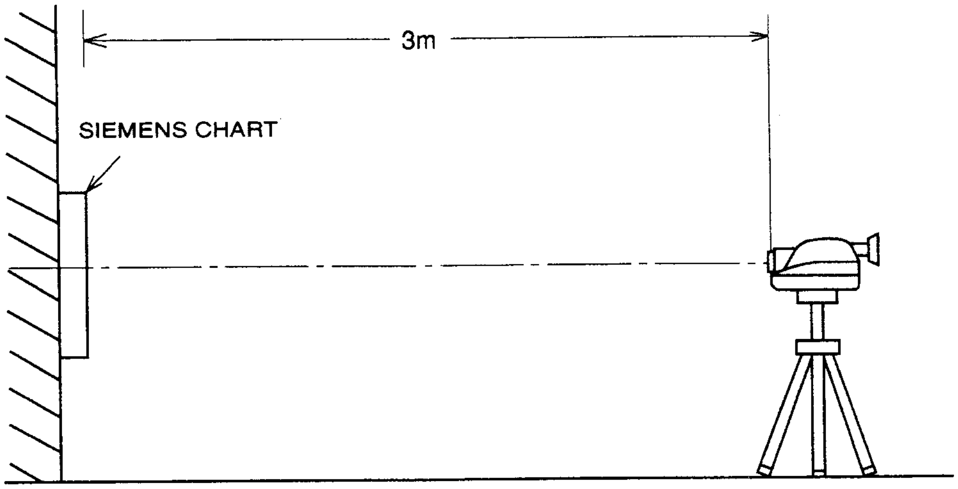
Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
26	CHROMA CLIP	COLOUR BAR CHART	EE, "PRESET No.17"	TERMINAL PCB P128 ⑦ pin (CDS4) & ⑭ pin (C.OUT)	∧ or ∨ button	 Keep the zoom lens and oscilloscope in the same condition as 25). Press the cursor button until the yellow part level starts reducing. Then zoom the lens to the telephoto position and confirm there is no carrier on the white part of the waveform. If there is no carrier, press the "SET" button. In case the carrier appears at the white part, press the cursor button again until the carrier just disappears and yellow part level starts reducing. Repeat the same procedure until the carrier does not appear on the white part when the zoom lens is moved. Press the "SET" button when the adjustment is performed satisfactory.
27	R-Y WHITE BALANCE (7200 °K)	COLOUR BAR CHART	EE, "PRESET No.18"	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-16 filter (7200 °K colour temperature adjustment) on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move up or down). Then press the "SET" button.
28	B-Y WHITE BALANCE (7200 °K)	COLOUR BAR CHART	EE, "PRESET No.19"	VIDEO OUT	∧ or ∨ button	Connect a vector scope to the VIDEO OUT and mount a C-16 filter on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move left or right). Then press the "SET" button.
29	R-Y LEVEL (7200 °K)	COLOUR BAR CHART	EE, "PRESET No.1A"	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-16 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the "SET" button.
30	B-Y LEVEL (7200 °K)	COLOUR BAR CHART	EE, "PRESET No.1B"	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-16 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the "SET" button.
31	R-Y MATRIX (7200 °K)	COLOUR BAR CHART	EE, "PRESET No.1C"	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-16 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the "SET" button.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
32	B-Y MATRIX (7200 °K)	COLOUR BAR CHART	EE, “PRESET No-1D”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-16 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the “SET” button.
33	R-Y WHITE BALANCE (3200 °K)	COLOUR BAR CHART	EE, “PRESET No.1E”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-1 filter on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move up or down). Then press the “SET” button.
34	B-Y WHITE BALANCE (3200 °K)	COLOUR BAR CHART	EE, “PRESET No.1F”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-1 filter on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move left or right). Then press the “SET” button.
35	R-Y LEVEL (3200 °K)	COLOUR BAR CHART	EE, “PRESET No.20”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-1 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the “SET” button.
36	B-Y LEVEL (3200 °K)	COLOUR BAR CHART	EE, “PRESET No.21”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-1 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the “SET” button.
37	R-Y MATRIX (3200 °K)	COLOUR BAR CHART	EE, “PRESET No.22”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-1 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the “SET” button.
38	B-Y MATRIX (3200 °K)	COLOUR BAR CHART	EE, “PRESET No-23”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-1 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the “SET” button.
39	R-Y WHITE BALANCE (FL LAMP)	COLOUR BAR CHART	EE, “PRESET No.24”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-8 filter on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move up or down). Then press the “SET” button.
40	B-Y WHITE BALANCE (FL LAMP)	COLOUR BAR CHART	EE, “PRESET No.25”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-8 filter on the lens. Press the cursor button so that the colour's spots on the screen are as near as possible in the correct positions (will move left or right). Then press the “SET” button.

Step	Adjustment item	Input signal or test tape	Mode	Test point	Adjustment part	Result and remarks
41	R-Y LEVEL (FL LAMP)	COLOUR BAR CHART	EE, “PRESET No.26”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-8 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the “SET” button.
42	B-Y LEVEL (FL LAMP)	COLOUR BAR CHART	EE, “PRESET No.27”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-8 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the “SET” button.
43	R-Y MATRIX (FL LAMP)	COLOUR BAR CHART	EE, “PRESET No.28”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-8 filter on the lens. Press the cursor button so that the blue spot is in the correct position. Press the “SET”button.
44	B-Y MATRIX (FL LAMP)	COLOUR BAR CHART	EE, “PRESET No-29”	VIDEO OUT	∧ or ∨ button	Connect a vector scope to VIDEO OUT and mount a C-8 filter on the lens. Press the cursor button so that the red spot is in the correct position. Press the “SET” button.
45	AUTO W. BALANCE (4600 °K)	GRAY SCALE CHART	EE, “PRESET No-2A”	-	-	Mount a C-8 filter on the lens and press the “SET” button.
46	AUTO W. BALANCE CALCUL-ATION	-	EE, “PRESET No-2B”	-	-	Press the “SET” button.

5-3-2. AUTO FOCUS TRACKING ADJUSTMENT

Setting for the CAMERA AUTO FOCUS TRACKING adjustment



- Pattern : Siemens chart
- Distance between the pattern and camera lens : exactly 3 m. (If the distance is not accurate, proper adjustment can not be performed.)
- TEST mode : "TEST mode 82" (refer to the information section on page 5.)
- Light : Center of the chart is not saturated when the zoom is in the full wide position as "TEST mode 82" will set the IRIS fully open.

Note:

- The purpose of this adjustment is when zooming from "wide" to "telephoto" (or vice versa), the focus lens follows the zoom lens motion and trys to keep the focus in the best position. And also sets the zoom lens's telephoto and wide end positions within range, not losing the focus. These control data will be kept in the EEP-ROM IC.
- Unless it is absolutely necessary, do not perform this adjustment as it is complicated and will take too much time.
- In case the auto focus tracking adjustment is necessary:
  1. The LENS BLOCK or ZOOM ENCODER PCB (on the LENS BLOCK) is replaced.
  2. The CCD element or CAMERA (1) PCB is replaced.
  3. The EEP-ROM IC (IC310), micro processing IC (IC309) or OPE-AMP IC (IC304 or 305) in the CAMERA (1) PCB is replaced.

1) Mount a unit on a tripod and set it so that the camera lens is exactly 3 m away from the siemens chart.
2) Engage "TEST mode 82", an octopus mark appears on the screen. Then press the "DISPLAY" button. A number of numeral rows appear on the screen. The numbers necessary on this adjustment are shown below. Confirm that the mode number is now "00".

```
                             82
          A                                       B          C
   * *  [* *]  * *   * *   * *  [* *_  * *]  [* *]
   * *   * *   * *   * *   * *   * *    * *    * *
 D[* *] [* *]E * *   * *   * *   * *  [* *_  * *]F
   * *   * *   * *   * *   * *   * *    * *    * *
```

A → T/W 1 (A/D) data : Use this zoom lens position data in step 3) or 7).
B → FOCUS CONDITION data : This value becomes maximum when the focus is in the best position during the adjustment. Use this value to find the best position when adjusting the focus manually with the "+" or "−" buttons.
C → MODE number : Present mode number is indicated during the adjustment.
D → T/W 2 (CAL) data : Use this value when comparing the data in step 12), in the telephoto position.
E → T/W 1 (CAL) data : Use this value when comparing the data in step 12), in the wide position.
F → FP number : Focus lens position data. Use this data in steps 5), 6), 8) to 10) and 12).

3) Set the zoom lens until the T/W 1 data becomes "61" by pressing the ∧or ∨buttons while the unit is in "mode No.00".

4) Press the ">" button once and proceed to "mode No.01"
Then press the "–" (or "+") button on the viewfinder until the picture on the screen is just in focus. (Pressing the "FOCUS" button once instead of the "–" or "+" button to set the AUTO FOCUS ON, is much easier for finding the best focus position.)

5) Press the "SET" button. The mode number turns to "02". Then press the "<" cursor button once to return to "mode No.01" and confirm that the FP (focus position) number is "00 00".

6) Set the focus lens by pressing the "+" (or "–") button until the FP number becomes "FE EC". Then press the zoom "T" button (or ∧ button) until the picture on the screen is just in focus in the telephoto position.
(Never set the unit to the auto focus mode in this step.)
Now read the T/W 1 data on the screen, and calculate the value of the T/W 1 data minus 34. If the value is 00, proceed to step 9). In case the value is not "00", proceed to step 7).

7) Return to "mode No.00" by pressing the "<" button. Set the new T/W 1 data. For example, if the value is +3, add 3 to the original T/W 1 data "61". Therefore the result becomes 64. So, set the T/W 1 data to "64" by pressing the "∨" button. Then repeat steps 4) to 5) and proceed to step 8).

8) Set the focus lens by pressing the "+" (or "–") button until the FP number becomes "FE EC". Then press the zoom "T" (or "∧" button) until the picture on the screen is just in focus in the telephoto position.
(Never set the unit to the auto focus mode in this step.)

9) Press the "SET" button twice. Then return to "mode No.01" and press the "+" (or "–") button until the FP number becomes "FF BB". Press the "SET" button once then press the ">" button. Now Confirm that the mode number is "03" and FP number is "00 00".

10) Move the zoom lens to the wide direction by pressing the "W" zoom (or "∨") button until the picture is just in focus. Then press the "SET" button. The focus lens starts moving until the sensor position is detected automatically. A few second later, the mode number will turn to "04". Now Confirm the FP number shown in the screen. If the FP number is between "96" to "FA", it means the adjustment is satisfactory. Press the "SET" button and conclude the adjustment. The mode number turns to "05" automatically.
If the FP number is not between "96" to "FA", repeat the adjustment from steps 3) to 10) until the result is satisfactory.

11) Press the "FOCUS" button and set the unit to the "auto focus mode". Confirm that the focus is following satisfactorily when zooming the lens from wide to telephoto or vice versa. (Press only the zooming "T" or "W" button in this step. Never press the "∧" or "∨" buttons as they will not detect both ends of the tracking range.)

12) Confirm whether the adjustment is perfect or not, by referring to the reference focus lens tracking data shown on next page. Set the zoom to the full wide position and read the T/W 1 (CAL) data and FP number data on the screen and compare with the reference data in the T/W 1 (CAL) list. If the actual data is within ± 3 of the reference data, the result is almost satisfactory. Then Set the zoom to the full telephoto position and read the T/W 2 (CAL) data and FP number data on the screen and compare it with the reference data in the T/W 2 (CAL) list. If the actual data is within ± 3 of the reference data, the result is almost satisfactory. Pick up a few points near zoom wide end and telephoto end and repeat the same procedure. If each comparison result is within ± 3 of the respective reference data, it means adjustment is satisfactory. Disengage "TEST MODE 82" by pressing the camera reset switch (the negative side of the battery terminal pin) located on the rear panel or disconnecting the power supply. In case the comparison value exceeds ± 3, repeat the adjustment from the steps 3) to 11) until the result is satisfactory.

FP number list when the distance between the camera lens and chart is 3 m.

T/W 1 (CAL) LIST (WIDE POSITION)

	FP number							
T/W 1 (CAL)	0/8	1/9	2/A	3/B	4/C	5/D	6/E	7/F
00 ~ 07	0001	0004	0007	000A	000D	000F	0012	0014
08 ~ 0F	0017	001A	001C	001F	0021	0024	0026	0029
10 ~ 17	002B	002E	0030	0033	0035	0038	003B	003D
18 ~ 1F	0040	0043	0045	0048	004B	004D	0050	0053
20 ~ 27	0055	0058	005B	005E	0060	0063	0066	0069
28 ~ 2F	006B	006E	0071	0074	0077	0079	007C	007F
30 ~ 37	0082	0085	0088	008B	008E	0090	0093	0096
38 ~ 3F	0099	009C	009F	00A2	00A5	00A8	00AB	00AE
40 ~ 47	00B1	00B4	00B7	00BA	00BD	00C0	00C3	00C5
48 ~ 4F	00C8	00CB	00CE	00D1	00D4	00D7	00DA	00DD
50 ~ 57	00E0	00E3	00E6	00E9	00EC	00EF	00F2	00F5
58 ~ 5F	00F7	00FA	00FD	0100	0103	0106	0109	010B
60 ~ 67	010E	0111	0114	0116	0119	011C	011E	0121
68 ~ 6F	0124	0126	0129	012B	012E	0130	0132	0135
70 ~ 77	0137	0139	013C	013E	0140	0142	0144	0146
78 ~ 7F	0148	0149	014B	014D	014F	0150	0151	0153
80 ~ 87	0154	0155	0156	0157	0158	0159	0159	015A
88 ~ 8F	015A	015A	015A	015A	015A	0159	0159	0158
90 ~ 96	0158	0157	0156	0156	0156	0156	0156	

T/W 2 (CAL) LIST (TELEPHOTO POSITION)

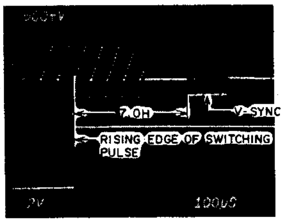
	FP NUMBER							
T/W 2 (CAL)	0/8	1/9	2/A	3/B	4/C	5/D	6/E	7/F
00 ~ 07	0046	0049	004C	0050	0054	0058	005C	0060
08 ~ 0F	0064	0068	006B	006F	0073	0077	007A	007E
10 ~ 17	0081	0085	0088	008C	008F	0092	0096	0099
18 ~ 1F	009C	009F	00A2	00A5	00A8	00AB	00AE	00B1
20 ~ 27	00B4	00B7	00BA	00BD	00C0	00C2	00C5	00C8
28 ~ 2F	00CA	00CD	00D0	00D2	00D5	00D7	00DA	00DC
30 ~ 37	00DE	00E1	00E3	00E5	00E8	00EA	00EC	00EE
38 ~ 3F	00F0	00F2	00F5	00F7	00F9	00FB	00FD	00FF
40 ~ 47	0100	0102	0104	0106	0108	010A	010B	010D
48 ~ 4F	010F	0110	0112	0114	0115	0117	0118	011A
50 ~ 57	011B	011D	011E	0120	0121	0122	0124	0125
58 ~ 5F	0127	0128	0129	012A	012C	012D	012E	012F
60 ~ 67	0130	0132	0133	0134	0135	0136	0137	0138
68 ~ 6F	0139	013A	013B	013C	013D	013E	013F	0140
70 ~ 77	0141	0141	0142	0143	0144	0145	0145	0146
78 ~ 7F	0147	0148	0148	0149	014A	014A	014B	014C
80 ~ 87	014C	014D	014D	014E	014F	014F	0150	0150
88 ~ 8F	0151	0151	0152	0152	0153	0153	0153	0154
90 ~ 97	0154	0155	0155	0155	0155	0155	0155	0155
98 ~ 9F	0155	0155	0155	0155	0155	0155	0155	0155
(FF)	0155	0155	0155					

5-4. FINAL ADJUSTMENT

Note : Set the unit to "TEST MODE 11" and press the "DISPLAY" button to display the MI-COM data on the screen (refer to the information section on page 5 before proceeding).

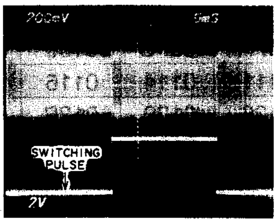
5-4-1. SWITCHING POINT ADJUSTMENT

1. Connect CH-1 of an oscilloscope to VIDEO OUT and CH-2 to the P27 ② pin (SWP) on the TERMINAL PCB.
2. Play back the reference tape TF-200RFS and press the "REC" button. Confirm that the switching point is positioned 7 H before the leading edge of the V-sync.



5-4-2. ATF TRACKING ADJUSTMENT

1. Connect CH-1 of an oscilloscope to the P27 ① pin (PB ENVE) and CH-2 to the P27 ② pin (SWP) for triggering on the TERMINAL PCB.
2. Play back the reference tape TF-200RFS and press the < or > button repeatedly until the RF envelope level becomes maximum and as flat as possible.
3. Press the "SHUTTER" button to memorize the best tracking point. Then press the "PLAY" button during playback to set the tracking center and confirm that the RF envelope is still at maximum.



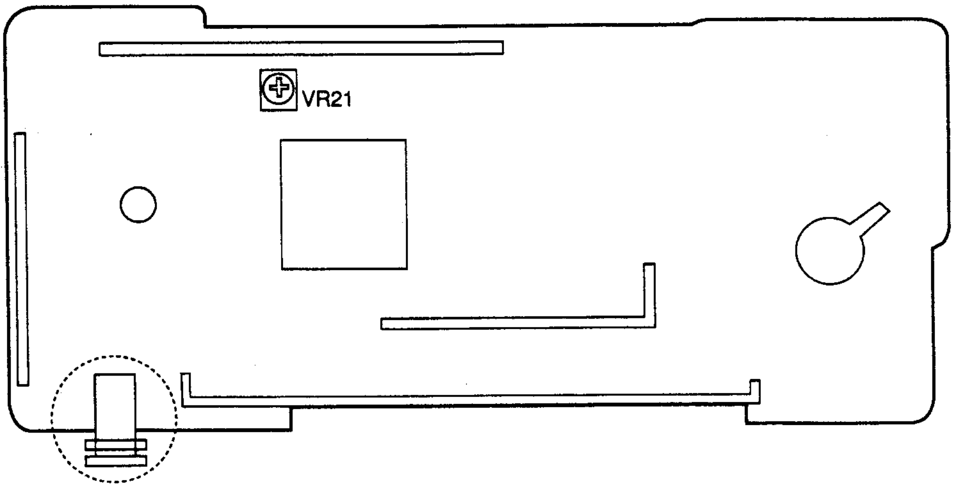
5-4-3. MEMORIZATION OF THE I-HQ REFERENCE VOLTAGE

1. Connect CH-1 of an oscilloscope to the P27 ① pin (PB ENVE) and CH-2 to the P27 ② pin (SWP) for triggering on the TERMINAL PCB.
2. Set the tape speed to the "SP" mode.
3. Make a recording on TEST TAPE TF-250AT (AT-751833J) and play it back.
4. Press the > or < button repeatedly until the envelope level becomes maximum and observe the I-HQ ENVE DET data. Then press the > button until the I-HQ ENVE data value becomes minus 4 from the maximum point of the data.

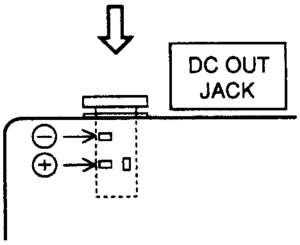
```
                                   11

  * *    * *    * *    * *    * *    * *    * *    * *
  * *    * *    * *    * *    * *    * *    * *    * *
  * *    * *    * *    * *    * *    * *   [* *]   * *
 [* *]  [* *]   * *    * *    * *    * *    * *    * *
   |      |                                  |
 (SP)    (LP)                    PRESENT I-HQ. ENVE DET DATA
I-HQ. PRESET DATA
```

5. Press the "SET" button and confirm that the ENVE DET data is almost the same as I-HQ PRESET data.
6. Set the tape speed to the "LP" mode and repeat steps 3 to 5.

5-5.AC ADAPTOR (VA-300) DC OUT ADJUSTMENT



MAIN PWB (TOP VIEW)



(BOTTOM VIEW)

1. Connect the video camera (PV-M2/M4) to the AC ADAPTOR and turn the camera POWER ON.
2. Connect a DC digital voltmeter to the DC OUT jack on the MAIN PWB.
3. Adjust VR21 so that the output voltage is 7.0 V.

VI. PARTS LIST

ATTENTION

1. **When placing an order for parts, be sure to list Part No., Model No. and the description of eachpart. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.**
2. **Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.**
3. **Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.**

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

Ref. No.	Part No.	Description
1	BH-T2023A320A	HEAD BASE BLOCK
2	HP-H2206A010A	HEAD R/P PR4-8FU C
3	ZS-477876	PAN20×03STL CMT
4	ZS-536488	BID20×08STL CMT
5	ZG-402895	SP CS ANGLE ADJUST

SP (Service Parts) Classification

This number corresponds with the individual parts index number in that figure.

b) PC Board

6. MAIN PC BOARD

Ref. No.	Part No.	Description
IC1	EI-324536	IC HD14049BP
IC2	EI-336801	IC MB8841-564M
C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
C1B	EC-350949	C MMY V 223M 250DC [J]
C1C	EC-338397	C MMY V 223M 125AC [C,A]
X1	EI-318384	OSC X'TAL NC-18C

Symbols for primary destination

[A] :AAL (U.S.A) [S] :SAA (Australia)
[B] :BEAB (England) [U] :U/T (Universal Area)
[C] :CSA (Canada)
[E] :CEE (Europe) [V] :VDE (Germany)
[J] :JPN (Japan) [Y] :Custom Version

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No.listed at right of Part No.

WARNING

⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉDE L'APPAREIL, NE REMPLACER QUE DES PIÉCES RECOMMANDEES PAR LÉ FABRICANT.

1. RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

Ref. No.	Part No.	Description
1	AV-B1045A010C	REMOCON BLK RC-M4 [PV-M4]
2	AV-B1045A010D	REMOCON BLK RC-M4F [PV-M4F]
3	BB-V3013A020A	MECHA DECK BLK PV-MS8
4	BH-V3013A400B	HEAD DRUM BLK PV-M4
5	BL-V3013A120A	TENSION BLK PV-MS8
6	BM-733286J	AF MOTOR ASSY
7	BM-410228J	MOTOR SCE-0301A
8	BM-733285J	PZ MOTOR ASSY
9	BO-410212J	Z00M LENS G38C
10	BT-733243J	TRANS ETS22K867A
11	BV-V3013A200A	EJECTOR BLK PV-MS8
12	BV-V3013A070A	LEADER (S) BLK PV-MS8
13	BV-V3013A080A	LEADER (T) BLK PV-MS8
14	BV-V3013A130A	LOADING MOTOR BLK PV-MS8
15	EA-404434J	PCB FLEXIBLE AV JACK
16	EA-410230J	PCB FLEXIBLE CAMERA MAIN
17	EA-410233J	PCB FLEXIBLE OP MAIN
18	ED-410246J	D LED C.BR1102W RED TRT08E
19	ED-410589J	D LED C.CL180URCTS RED T08E
20	ED-410245J	D LED C.PG1102W GREEN TRT08E
21	ED-410215J	D LED GL453 INFRARED
22	ED-725278J	D LED SLR-34MC70F GREEN
23	ED-733249J	D LED SLR-34VR
24	ED-386025J	D SILICON CHIP DAN202U
25	ED-405339J	D SILICON CHIP DA115
26	ED-386024J	D SILICON CHIP DA204U
27	ED-408518J	D SILICON CHIP DA221
28	ED-386031J	D SILICON CHIP MA110-TW
29	ED-404449J	D SILICON CHIP MA132WK
30	ED-412061J	D SILICON CHIP MA147
31	ED-412092J	D SILICON CHIP MA717
32	ED-389579J	D SILICON CHIP RB400D
33	ED-389578J	D SILICON CHIP RB451F T106T08E
34	ED-733238J	D SILICON ERA15-01V
35	ED-385935J	D SILICON ERA22-04V3 T26 400/5
36	ED-371510	D SILICON ERA22-08Y F05
37	ED-380715J	D SILICON ERB83-004 40/1.7A
38	ED-733247J	D SILICON ERC81-004L7
39	ED-733246J	D SILICON ESAB92M-02
40	ED-732853J	D SILICON S1WB (A) 60
41	ED-733239J	D SILICON 1SS133T-77
42	ED-408555J	D SOHOTTKY CHIP U1GWJ49
43	ED-394636J	D VARACTOR CHIP 1SV200
44	ED-392394J	D ZENER CHIP MA3039-H TW
45	ED-404060J	D ZENER CHIP MA3075-L TW
46	ED-717552	D ZENER H MA4051-M
47	ED-724036J	D ZENER MTZJ27D
48	ED-733248J	D ZENER MTZJ5.6CT-77
49	*EF-410226J	FUSE C.SSFC 125V 3.15A T12E
50	*EF-404063J	FUSE ICP-F50 50V 2.0A
51	EF-733253J	FUSE THEERMO S3
52	EF-733244J	FUSE 250V 1A
53	EI-408540J2	IC M37471M8-224FP EMZOPP2
54	EI-410216J	DETECTOR SPI-315-44 B.C
55	EI-410133J	IC AN1324NS
56	EI-410132J	IC AN1339S
57	EI-386023J	IC AN1358S-T1
58	EI-410134J	IC AN1393S
59	EI-403519J	IC AN2012SB
60	EI-408507J	IC AN2145FHP
61	EI-403580J	IC AN2457SB
62	EI-718598	IC AN8005
63	EI-386011J	IC BA10358F
64	EI-410179J	IC BA225F-T1
65	EI-408522J	IC CXA1204Q
66	EI-408571J	IC CXA1207AR
67	EI-408574J	IC CXA1208R
68	EI-408556J	IC CXA1488R
69	EI-408550J	IC CXD1172AM-T3
70	EI-408572J	IC CXL1506M
71	EI-733260J	IC FA5307S
72	EI-733262J	IC HA012612S
73	EI-412017J	IC HA118041MP-ER
74	EI-414543J	IC LA6324NM
75	EI-403658J	IC LB1830M
76	EI-408523J	IC LB1851M
77	EI-408534J	IC MB3778PFV
78	EI-408552J1	IC MB636128 DAF02-FSY
79	EI-405377J	IC MB88346APFV EF [PV-M4/F]
80	EI-410131J	IC MC34074DR
81	EI-410137J	IC MC74HC02AFR
82	EI-410136J	IC MC74HC4002FR
83	EI-410135J	IC MC74HC4066FR
84	EI-410448J	IC MM1117XFF
85	EI-410449J	IC MM1118XFF
86	EI-403502J	IC MN3820S
87	EI-410172J	IC MN5151H
88	EI-401280J	IC MN73033XRA
89	EI-408501J1	IC M37451M8-224FP EMZCMR2
90	EI-403505J	IC M62352GP [PV-M2/F]
91	EI-408612J	IC NBC5800
92	EI-408541J	IC S-8420BF
93	EI-410452J	IC SC00314S66FER
94	EI-410138J	IC SC14S71FER
95	EI-410139J	IC SC7S04FER
96	EI-410169J	IC ST24C02AM1013TR
97	EI-408551J	IC TB6504F-EL
98	EI-408629J	IC TC4W53F
99	EI-404464J	IC TC7W08F
100	EI-408628J	IC TL8811F
101	EI-408383J	IC UPD6451AGT-819
102	EI-408520J2	IC UPD78136GF-026-3B9 EMZSYP3
103	EI-408557J	IC.CXA1536Q [PV-M4/F]
104	EI-408543J	OSC CE CHIP FAR-C4CD04000-M20R
105	EI-408517J	OSC CE CHIP FAR-C4CD12000M02-R
106	EI-382875J	OSC CE CST4.00MGW 4MHZ
107	EI-408529J	OSC X,TAL C.CX-5F 12.000MHZ
108	EI-408530J	OSC X,TAL C.CX-5F 5.85938MHZ
109	EI-410176J	OSC X,TAL C.CX49F 17734.475KHZ
110	EI-410175J	OSC X,TAL C.JXO-3F 19.3125MHZ
111	EI-404438J	OSC X,TAL C.SMD-49 4.433619MHZ
112	EI-368825M	OSC X'TAL C-002RX 32.768KHZ
113	EI-409981J	PLATE CCD M2 PART
114	*EO-408538J	COILFIX CHIP ELL-06T*****
115	ES-410219J	OPERATION A M2
116	ES-404399J	OPERATION A M2F FRENCH
117	ES-410221J	OPERATION A M4
118	ES-404397J	OPERATION A M4F FRENCH
119	ES-410235J	OPERATION H M2 [PV-M2/F]
120	ES-410234J	OPERATION H M4 [PV-M4/F]
121	ES-410236J	OPERATION TW
122	ES-410531J	SW MICRO MPU10130MMB0
123	ES-408907J	SW MICRO MPU20110MMB0
124	ES-408906J	SW MICRO MPU30020MMB0
125	ES-733257J	SW MICRO MSS-8-2
126	ES-408905J	SW MODE SELECT MMS00140ZZB0
127	ES-413067J	SW SLIDE SSSS81 01-03*
128	ES-403634J	SW TACT SKEYAB
129	ET-410468J	DETECTOR GP1U561
130	ET-733287J	DETECTOR ON-1004
131	ET-733252J	PHOTO COUPLER PC111LS
132	ET-386053J	TR CHIP DTA143EU
133	ET-403804J	TR CHIP DTC124EE
134	ET-403663J	TR CHIP DTC124TU
135	ET-732638J	TR CHIP DTC144EK
136	ET-408879J	TR CHIP UN9111
137	ET-408883J	TR CHIP UN9113
138	ET-408880J	TR CHIP UN9115
139	ET-404465J	TR CHIP UN921D
140	ET-404462J	TR CHIP UN9211
141	ET-408886J	TR CHIP UN9213
142	ET-408884J	TR CHIP UN9215
143	ET-386029J	TR CHIP 2SB1121 T
144	ET-410433J	TR CHIP 2SB1124 S,T,U
145	ET-410150J	TR CHIP 2SB1218A R,S
146	ET-408616J	TR CHIP 2SB1462 R.S
147	ET-386028J	TR CHIP 2SB815 B6 TAT08E
148	ET-386030J	TR CHIP 2SC4081 R,S
149	ET-403561J	TR CHIP 2SC4617 R

Ref. No.	Part No.	Description
150	ET-405625J	TR CHIP 2SD1819A-TW R,S
151	ET-408617J	TR CHIP 2SD2216 R,S
152	ET-403559J	TR D-CHIP UMW1
153	ET-404454J	TR D-CHIP XP4312 TWT08E
154	ET-410239J	TR D-CHIP XP4401 TWT08E
155	ET-410240J	TR D-CHIP XP4501 TWT08E
156	ET-410241J	TR D-CHIP XP4601 TWT08E
157	ET-370634	TR DTA143XS
158	ET-382952J	TR DTC123ES
159	ET-410422J	TR FET CHIP 2SK1332-3 TLT08E
160	ET-733245J	TR FET 2SK951
161	ET-410217J	TR PHOTO PT4810F
162	ET-733251J	TR 2SB952
163	ET-403851J	TR.CHIP 2SD2150 R,S
164	EY-410204J	MIC *M2
165	EY-404401J	MIC M2F FRENCH
166	EY-410203J	MIC M4
167	EY-404404J	MIC M4F FRENCH
168	MB-406821J	BELT SYNCHRO
169	MI-406823J	IDLER PART
170	ML-406864J1	ARM REVIW PART
171	MP-V3013A100A	PINCH ROLLER BLK PV-MS8
172	MS-406871J	GUIDE REVIW
173	MS-409943J1	GUIDE (1)
174	MT-406801J	REEL (S) PART
175	MT-406813J	REEL (T) PART
176	MZ-406815J	GEAR BELT (1) PART
177	MZ-406818J	GEAR BELT (2) PART
178	MZ-406915J	GEAR CAM CENTER
179	MZ-406872J	HOLDER TAPE GUIDE PART
180	BM-408631J	MOTOR DCX-30 A1VCR
181	VC-V3013A330E	E.V.F BLK PV-M2
182	VC-V3013A330F	E.V.F BLK PV-M2F
183	VC-V3013A330C	E.V.F BLK PV-M4
184	VC-V3013A330D	E.V.F BLK PV-M4F
185	VC-733284J	IG METER ASSY
186	VC-733283J	ZOOM ENCORDER

2. HEAD DRUM BLOCK

Ref.No.	Part No.	Description
1	BH-V3013A400B	HEAD DRUM BLK PV-M4 [INC. 2 TO 12]
2	BM-408631J	MOTOR DCX-30 A1VCR
3	ZS-377198	PAN17X04STL BZN PS1
4	MZ-407036J	COLLAR MOTOR
5	ZS-390437J	PAN14X03STL BZN PS1
6	HZ-407037J	HOLDER MOTOR
7	ZG-406976J	SP PLATE CHASSIS DRUM
8	ZS-409930J	PAN14X025STL BZN PS SPECIAL
9	MA-409235J	CHASSIS DRUM
10	ZS-377198	PAN17X04STL BZN PS1
11	VT-408632J	EARTH BRUSH PART EMZ
12	ZS-409994J	PAN14X016STL NI3 PS SPL

NOTE:
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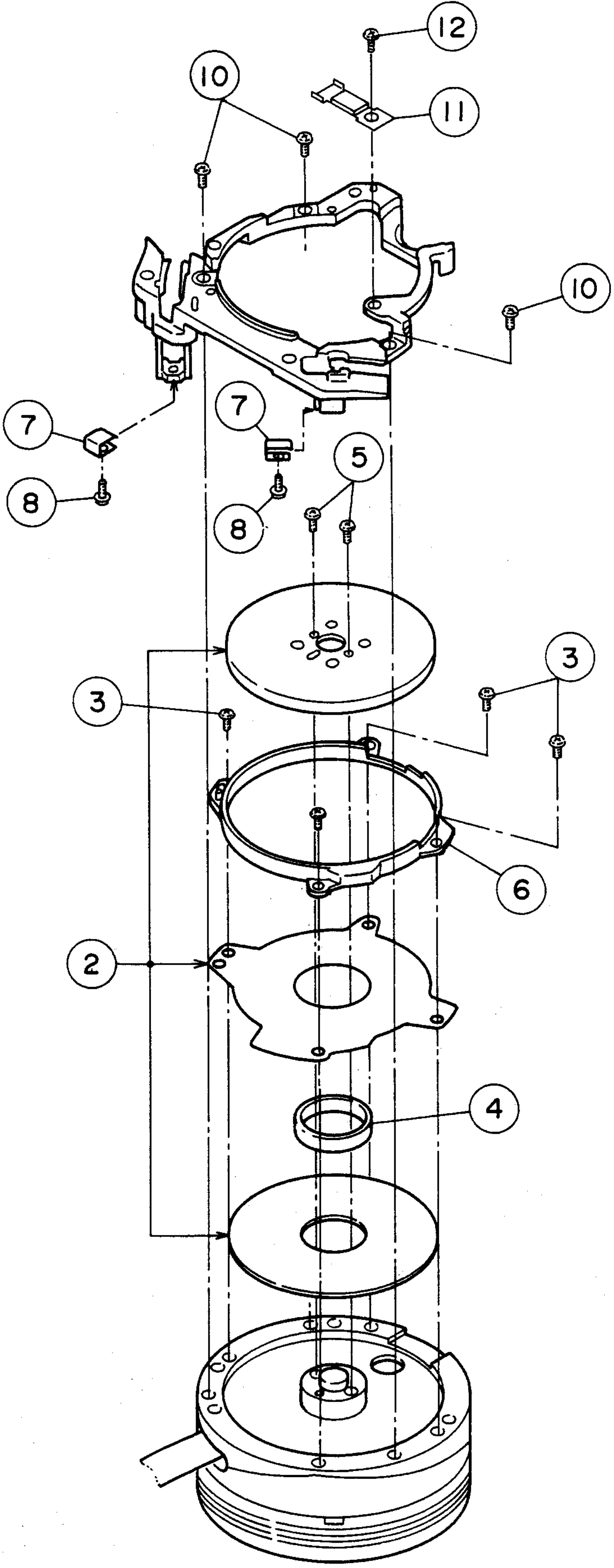
HEAD DRUM BLOCK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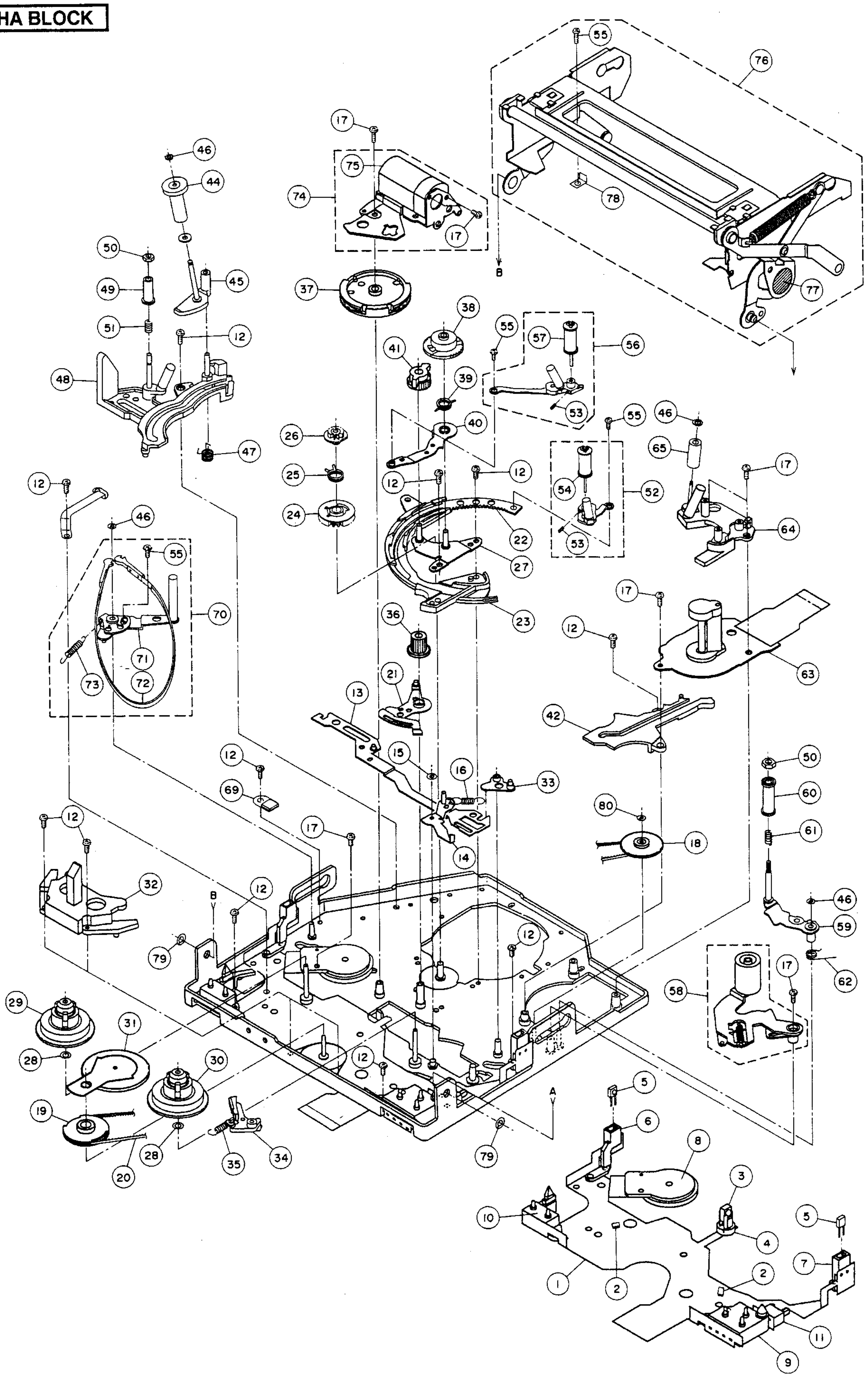
MECHA BLOCK


B
B
A

3. MECHA BLOCK

Ref.No.	Part No.	Description
1	EA-409984J	PC FLEX MACHA
2	EI-410216J	DETECTOR SPI-315-44 B.C
3	ED-410215J	D LED GL453 INFRARED
4	MZ-406914J	HOLDER LED
5	ET-410217J	TR PHOTO PT4810F
6	MZ-406911J	HOLDER SENSER (S)
7	MZ-406913J	HOLDER SENSER (T)
8	ES-408905J	SW MODE SELECT MMS00140ZZB0
9	ES-408906J	SW MICRO MPU30020MMB0
10	ES-408907J	SW MICRO MPU20110MMB0
11	ES-410531J	SW MICRO MPU10130MMB0
12	ZS-409993J	BT PAN17X035STL NI3 PS1
13	ML-406938J	PLATE SLIDER PART
14	ML-406930J	LEVER EJECT PART
15	ZW-390450J	SLIT W12X035X025 PSL
16	ZG-406933J	SP PULL LEVER EJECT
17	ZS-409930J	PAN14X025STL BZN PS SPECIAL
18	MZ-406815J	GEAR BELT (1) PART
19	MZ-406818J	GEAR BELT (2) PART
20	MB-406821J	BELT SYNCHRO
21	ML-406935J	LEVER CAM PINCH PART
22	MZ-406922J	SLIDER RING
23	MZ-406926J1	HOLDER RING
24	MZ-406919J	GEAR LOADING (1)
25	ZG-406921J	SP TORSION LOADING
26	MZ-406920J	GEAR LOADING (2)
27	MZ-406927J	PLATE GEAR PART
28	ZW-409995J	PW13X035X025PSL
29	MT-406801J	REEL (S) PART
30	MT-406813J	REEL (T) PART
31	MI-406823J	IDLER PART
32	MZ-406887J	GUIDE BRAKE
33	ML-406944J	LEVER SLIDER PART
34	ML-406940J1	ARM BRAKE PART
35	ZG-406943J	SP PULL BRAKE
36	MZ-410902J	GEAR WHEEL (1) PART
37	MZ-406915J	GEAR CAM CENTER
38	MZ-406918J	GEAR TOGGLE
39	ZG-406925J	SP TORSION LEVER TOGGLE
40	ML-406924J	LEVER TOGGLE
41	MZ-406917J	GEAR RELAY
42	MZ-406886J	GUIDE RAIL (T)
44	MR-406834J2	ROLLER Z PART
45	ML-406830J1	LEVER Z ROLLER PART
46	ZW-409988J	SLIT W10X024X025 PSL
47	ZG-406837J	SP TORSION LEVER Z
48	MS-406881J	GUIDE RAIL (S) PART
49	MS-409943J1	GUIDE (1)
50	ZS-409996J	N14BRS NI3 SPL
51	ZG-406885J	SP PUSH TAPE GUIDE
52	BV-V3013A070A	LEADER (S) BLK PV-MS8
53	ZS-409991J	6SET14X020SAE FP
54	VT-409944J	GUIDE ROLLER PART
55	ZS-412012J	PAN14X016STL CMT PS SPL
56	BV-V3013A080A	LEADER (T) BLK PV-MS8
57	MR-413413J	GUIDE ROLLER (2) PART
58	MP-V3013A100A	PINCH ROLLER BLK PV-MS8
59	ML-406864J1	ARM REVIW PART
60	MS-406871J	GUIDE REVIW
61	ZG-406869J	SP PUSH REVIW
62	ZG-406870J	SP TORSION REVIW
63	BM-410228J	MOTOR SCE-0301A
64	MZ-406872J	HOLDER TAPE GUIDE PART
65	MR-406880J	ROLLER TAPE GUIDE
69	EX-404488J	DEW SENSOR EYH-S78D3
70	BL-V3013A120A	TENSION BLK PV-MS8
71	ML-406838J	LEVER TENSION PART
72	MZ-406845J	SHEET TENSION PART
73	ZG-406849J1	SP PULL TENSION
74	BV-V3013A130A	LOADING MOTOR BLK PV-MS8
75	BM-410229J	MOTOR GM01
76	BV-V3013A200A	EJECTOR BLK PV-MS8
77	MZ-408878J	DUMPER Y18246-00800
78	MZ-411270J	STOPPER CASSETTE (S)
79	ZW-387492J	SLIT W21X040X050PSL
80	ZW-412011J	SLIT W08X030X025 PSL
81	BB-V3013A020A	MECHA DECK BLK PV-MS8

NOTE:
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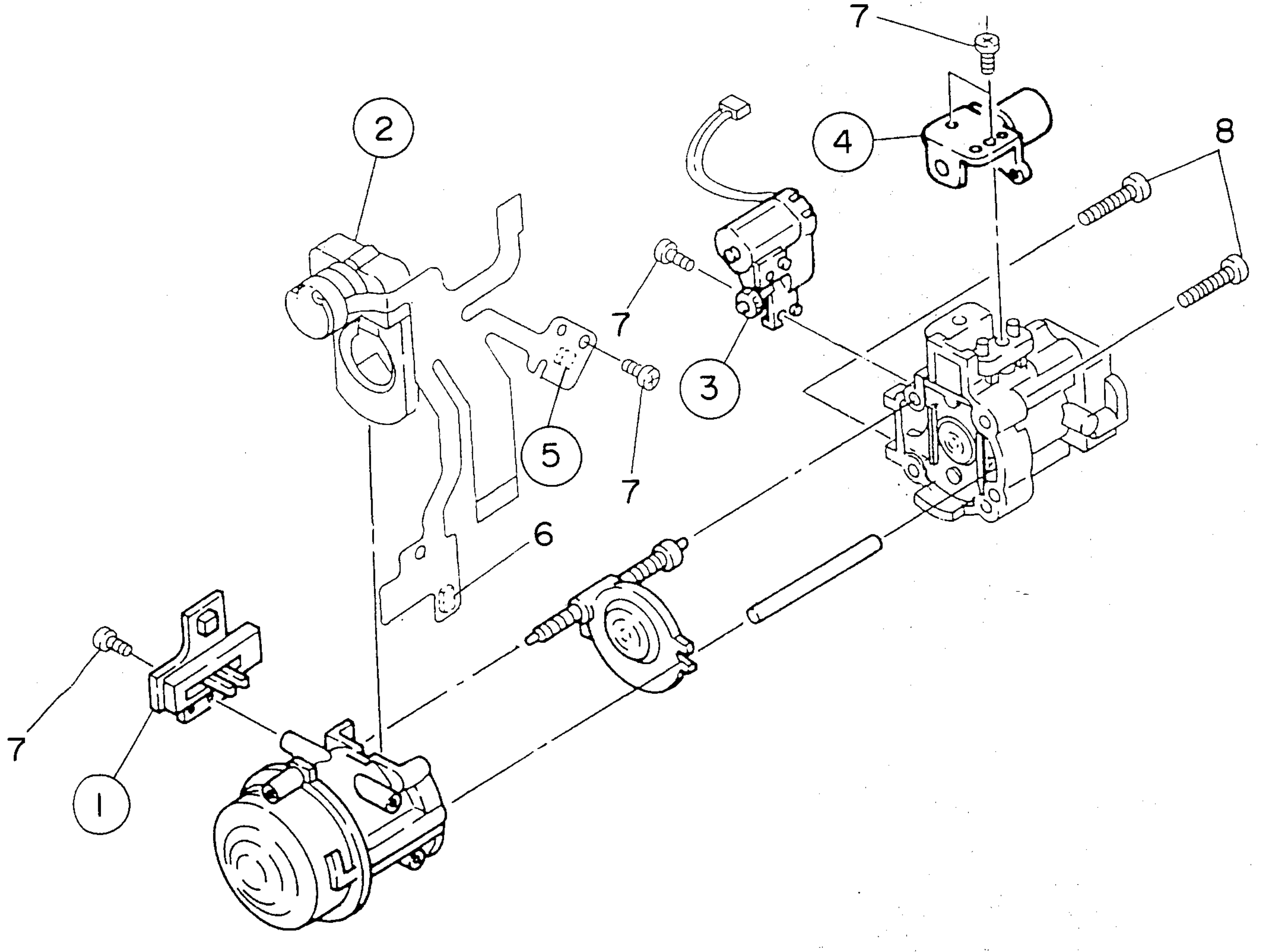
LENS BLOCK



4. LENS BLOCK

Ref.No.	Part No.	Description
1	VC-733283J	ZOOM ENCORDER
2	VC-733284J	IG METER ASSY
3	BM-733285J	PZ MOTOR ASSY
4	BM-733286J	AF MOTOR ASSY
5	ET-733287J	DETECTOR ON-1004

NOTE:
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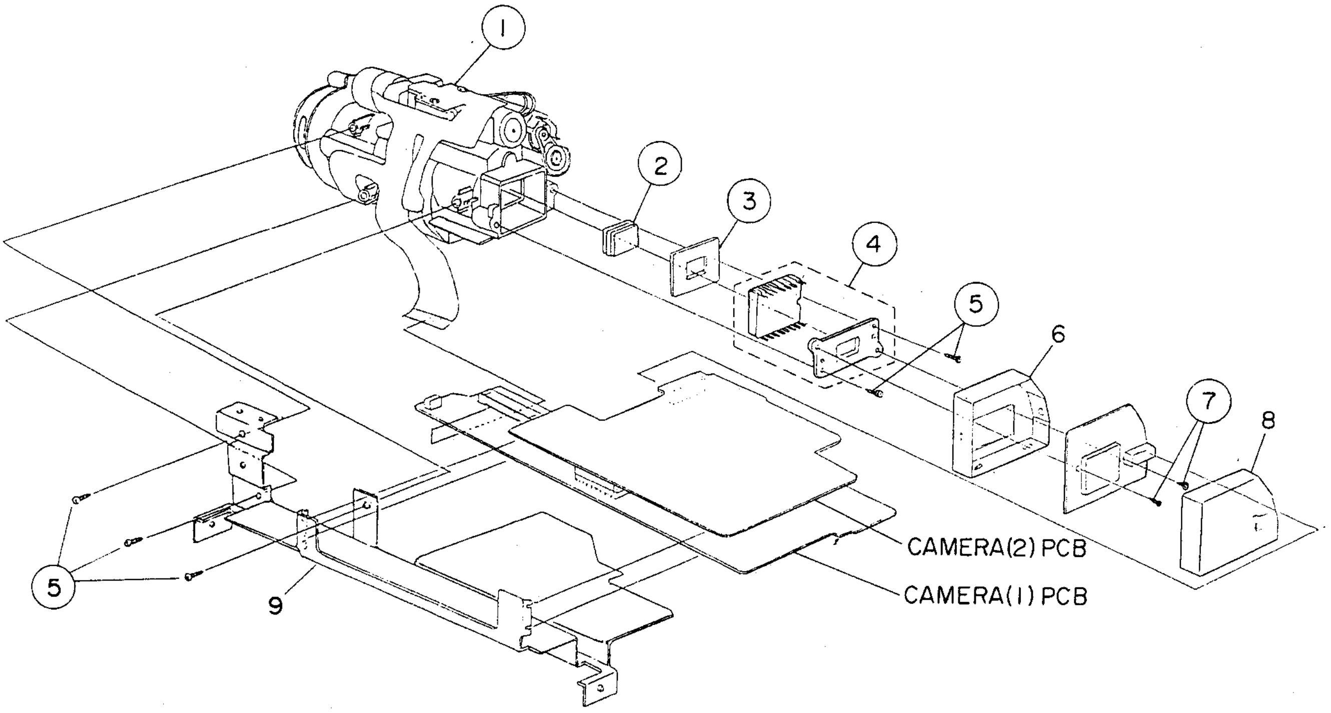
CAMERA BLOCK



5. CAMERA BLOCK

Ref.No.	Part No.	Description
1	BO-410212J	Z00M LENS G38C
2	VC-410213J	FILTER X'TAL SV-511B
3	MB-409759J	RUBBER SEAL
4	EI-409981J	PLATE CCD M2 PART (CCD IC)
5	ZS-409970J	BT PAN17X04STL BZN PS1
7	ZS-374452	PAN17X03STL BZN PS1

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

6. P.C BOARD BLOCK

Ref.No.	Part No.	Description
1A	BA-733301J	PC MAIN BLK PV-M2
1B	BA-733302J	PC MAIN BLK PV-M4
2A	BA-733303J	PC PRE AMP BLK PV-M2
2B	BA-733304J	PC PRE AMP BLK PV-M4
3A	BA-733305J	PC MIC AMP BLK PV-M2
3B	BA-733306J	PC MIC AMP BLK PV-M4
4A	BA-733307J	PC CAMERA (1) BLK PV-M2
4B	BA-733308J	PC CAMERA (1) BLK PV-M4
5A	BA-733309J	PC CAMERA (2) BLK PV-M2
5B	BA-733310J	PC CAMERA (2) BLK PV-M4
6A	BA-733311J	PC CCD BLK PV-M2
6B	BA-733312J	PC CCD BLK PV-M4
7A	BA-733313J	PC POWER SUPPLY BLK PV-M2
7B	BA-733314J	PC POWER SUPPLY BLK PV-M4

7. MAIN P.C BOARD

Ref.No.	Part No.	Description
D1	ED-386025J	D SILICON CHIP DAN202U
D2	ED-412061J	D SILICON CHIP MA147
D4	ED-386031J	D SILICON CHIP MA110-TW
D5	ED-386031J	D SILICON CHIP MA110-TW
D6	ED-386031J	D SILICON CHIP MA110-TW
D7	ED-386031J	D SILICON CHIP MA110-TW
D8	ED-386025J	D SILICON CHIP DAN202U
D9	ED-386031J	D SILICON CHIP MA110-TW
D10	ED-386025J	D SILICON CHIP DAN202U
D301	ED-404060J	D ZENER CHIP MA3075-L TW
D302	ED-408518J	D SILICON CHIP DA221
D303	ED-408518J	D SILICON CHIP DA221
D501	ED-412092J	D SILICON CHIP MA717
D701	ED-386031J	D SILICON CHIP MA110-TW
D702	ED-404449J	D SILICON CHIP MA132WK
D703	ED-404449J	D SILICON CHIP MA132WK
D704	ED-404449J	D SILICON CHIP MA132WK
D705	ED-404449J	D SILICON CHIP MA132WK
D706	ED-404449J	D SILICON CHIP MA132WK
D707	ED-404449J	D SILICON CHIP MA132WK
D708	ED-404449J	D SILICON CHIP MA132WK
D709	ED-404449J	D SILICON CHIP MA132WK
FL1	EH-408871J	FILTER LC C.TH354LAI-6047
FL2	EH-408872J	FILTER LC C.TH355LNK-6045
FL3	EH-408873J	FILTER LC C.H355LNK-4602
FL4	EH-408874J	FILTER LC C.H356LDM-4665
FL201	EH-410178J	FILTER CE SFSL5.17MDB
FL202	EH-412155J	FILTER LC CHIP A353TCH-6353
FL203	EH-404440J	FILTER LC CHIP RZV-36RN
FL501	EH-408559J	FILTER LC CHIP 4165 1.5MBPF
FL502	EH-408560J	FILTER LC CHIP 3786 1.7MBPF
IC1	EI-408571J	IC CXA1207AR
IC2	EI-408572J	IC CXL1506M
IC3	EI-410448J	IC MM1117XFF
IC4	EI-410449J	IC MM1118XFF
IC6	EI-410452J	IC SC00314S66FER
IC8	EI-410179J	IC BA225F-T1
IC9	EI-404464J	IC TC7W08F
IC201	EI-408574J	IC CXA1208R
IC202	EI-408628J	IC TL8811F
IC203	EI-408383J	IC UPD6451AGT-819
IC204	EI-408629J	IC TC4W53F
IC205	EI-408629J	IC TC4W53F
IC301	EI-408522J	IC CXA1204Q
IC302	EI-414543J	IC LA6324NM
IC303	EI-408520J2	IC UPD78136GF-026-3B9 EMZSYP3
IC304	EI-403658J	IC LB1830M
IC305	EI-408612J	IC NBC5800
IC306	EI-414543J	IC LA6324NM
IC307	EI-408523J	IC LB1851M
IC501	EI-408556J	IC CXA1488R
IC502	EI-408556J	IC CXA1488R [PV-M4/F]
IC503	EI-408557J	IC.CXA1536Q [PV-M4/F]
IC701	EI-408540J2	IC M37471M8-224FP EMZOPP2
IC702	EI-408541J	IC S-8420BF
J15	EJ-412028J	SOCKET C.52365-1890 18P
P5	EJ-408544J	PLUG C.52204-2490 24P
P17	EJ-408621J	PLUG C.52396-1290 12P
P307	EJ-404451J	PLUG C.52204-1090 10P
P308	EJ-412003J	PLUG C.52396-1890 18P
P309	EJ-412032J	PLUG C.53268-2290 22P
P501	EJ-403624J	PLUG C.53261-0490 4P
P710	EJ-408545J	PLUG C.52207-1290 12P
P711	EJ-408544J	PLUG C.52204-2490 24P
TR1	ET-408616J	TR CHIP 2SB1462 R.S
TR2	ET-408617J	TR CHIP 2SD2216 R.S
TR3	ET-408617J	TR CHIP 2SD2216 R.S
TR4	ET-408617J	TR CHIP 2SD2216 R.S
TR5	ET-408617J	TR CHIP 2SD2216 R.S
TR6	ET-408884J	TR CHIP UN9215
TR7	ET-408617J	TR CHIP 2SD2216 R.S
TR8	ET-408617J	TR CHIP 2SD2216 R.S
TR9	ET-408886J	TR CHIP UN9213
TR10	ET-386030J	TR CHIP 2SC4081 R,S
TR11	ET-408616J	TR CHIP 2SB1462 R.S
TR12	ET-408617J	TR CHIP 2SD2216 R.S
TR13	ET-408616J	TR CHIP 2SB1462 R.S
TR14	ET-408617J	TR CHIP 2SD2216 R.S
TR15	ET-408617J	TR CHIP 2SD2216 R.S
TR16	ET-386030J	TR CHIP 2SC4081 R,S
TR20	ET-404462J	TR CHIP UN9211
TR21	ET-404465J	TR CHIP UN921D
TR23	ET-408617J	TR CHIP 2SD2216 R.S
TR24	ET-408617J	TR CHIP 2SD2216 R.S
TR25	ET-408879J	TR CHIP UN9111
TR26	ET-408886J	TR CHIP UN9213
TR27	ET-408617J	TR CHIP 2SD2216 R.S
TR28	ET-408617J	TR CHIP 2SD2216 R.S
TR29	ET-408617J	TR CHIP 2SD2216 R.S
TR30	ET-408617J	TR CHIP 2SD2216 R.S
TR31	ET-408886J	TR CHIP UN9213
TR32	ET-408879J	TR CHIP UN9111
TR33	ET-408617J	TR CHIP 2SD2216 R.S
TR34	ET-408617J	TR CHIP 2SD2216 R.S
TR35	ET-408617J	TR CHIP 2SD2216 R.S
TR36	ET-386027J	TR CHIP 2SA1576 R,S
TR37	ET-386028J	TR CHIP 2SB815 B6 TAT08E
TR38	ET-408886J	TR CHIP UN9213
TR39	ET-386028J	TR CHIP 2SB815 B6 TAT08E
TR40	ET-408617J	TR CHIP 2SD2216 R.S
TR41	ET-408617J	TR CHIP 2SD2216 R.S
TR42	ET-408886J	TR CHIP UN9213
TR43	ET-408616J	TR CHIP 2SB1462 R.S
TR44	ET-408616J	TR CHIP 2SB1462 R.S
TR45	ET-408884J	TR CHIP UN9215
TR47	ET-408616J	TR CHIP 2SB1462 R.S
TR49	ET-408886J	TR CHIP UN9213
TR51	ET-408879J	TR CHIP UN9111
TR52	ET-408886J	TR CHIP UN9213
TR53	ET-408617J	TR CHIP 2SD2216 R.S
TR54	ET-408886J	TR CHIP UN9213
TR201	ET-408617J	TR CHIP 2SD2216 R.S
TR202	ET-408616J	TR CHIP 2SB1462 R.S
TR204	ET-408617J	TR CHIP 2SD2216 R.S
TR205	ET-408617J	TR CHIP 2SD2216 R.S
TR206	ET-408617J	TR CHIP 2SD2216 R.S
TR207	ET-408616J	TR CHIP 2SB1462 R.S
TR208	ET-408616J	TR CHIP 2SB1462 R.S
TR209	ET-408617J	TR CHIP 2SD2216 R.S
TR210	ET-408616J	TR CHIP 2SB1462 R.S
TR211	ET-408617J	TR CHIP 2SD2216 R.S
TR216	ET-408617J	TR CHIP 2SD2216 R.S
TR217	ET-408616J	TR CHIP 2SB1462 R.S
TR218	ET-408617J	TR CHIP 2SD2216 R.S
TR219	ET-408617J	TR CHIP 2SD2216 R.S
TR221	ET-386027J	TR CHIP 2SA1576 R,S
TR222	ET-408886J	TR CHIP UN9213
TR223	ET-408616J	TR CHIP 2SB1462 R.S
TR224	ET-408617J	TR CHIP 2SD2216 R.S
TR225	ET-408880J	TR CHIP UN9115
TR301	ET-408616J	TR CHIP 2SB1462 R.S
TR302	ET-410241J	TR D-CHIP XP4601 TWT08E
TR303	ET-404454J	TR D-CHIP XP4312 TWT08E
TR306	ET-386029J	TR CHIP 2SB1121 T
TR307	ET-386029J	TR CHIP 2SB1121 T
TR308	ET-386029J	TR CHIP 2SB1121 T
TR309	ET-386029J	TR CHIP 2SB1121 T
TR310	ET-408616J	TR CHIP 2SB1462 R.S
TR311	ET-408886J	TR CHIP UN9213

Ref. No.	Part No.	Description
TR501	ET-386030J	TR CHIP 2SC4081 R,S
TR502	ET-386030J	TR CHIP 2SC4081 R,S
TR503	ET-386030J	TR CHIP 2SC4081 R,S
TR504	ET-386030J	TR CHIP 2SC4081 R,S [PV-M4/F]
TR505	ET-408616J	TR CHIP 2SB1462 R.S [PV-M4/F]
TR506	ET-386030J	TR CHIP 2SC4081 R,S [PV-M4/F]
TR507	ET-386030J	TR CHIP 2SC4081 R,S [PV-M4/F]
TR508	ET-386030J	TR CHIP 2SC4081 R,S [PV-M4/F]
TR509	ET-386030J	TR CHIP 2SC4081 R,S
TR512	ET-408886J	TR CHIP UN9213 [PV-M4/F]
TR513	ET-408886J	TR CHIP UN9213 [PV-M4/F]
TR514	ET-408883J	TR CHIP UN9113 [PV-M4/F]
VR1	EV-404156J	R S-FIX C. T08 TMC3KTR 472
VR2	EV-404151J	R S-FIX C. T08 TMC3KTR 222
VR3	EV-408596J	R S-FIX C. T08 TMC3KTR 223
VR4	EV-404153J	R S-FIX C. T08 TMC3KTR 473
VR5	EV-406700J	R S-FIX C. T08 TMC3KTR 102
VR6	EV-404153J	R S-FIX C. T08 TMC3KTR 473
VR7	EV-406700J	R S-FIX C. T08 TMC3KTR 102
VR8	EV-404151J	R S-FIX C. T08 TMC3KTR 222
VR9	EV-406700J	R S-FIX C. T08 TMC3KTR 102
VR10	EV-404150J	R S-FIX C. T08 TMC3KTR 103
VR11	EV-408596J	R S-FIX C. T08 TMC3KTR 223
VR203	EV-408570J	R S-FIX C. T08 TMC3KTR 682
VR204	EV-404156J	R S-FIX C. T08 TMC3KTR 472
VR205	EV-404156J	R S-FIX C. T08 TMC3KTR 472
VR501	EV-404150J	R S-FIX C. T08 TMC3KTR 103
VR502	EV-404150J	R S-FIX C. T08 TMC3KTR 103
VR503	EV-404150J	R S-FIX C. T08 TMC3KTR 103 [PV-M4/F]
VR504	EV-404150J	R S-FIX C. T08 TMC3KTR 103 [PV-M4/F]
X201	EI-404438J	OSC X,TAL C.SMD-49 4.433619MHZ
X301	EI-408530J	OSC X,TAL C.CX-5F 5.85938MHZ
X302	EI-408529J	OSC X,TAL C.CX-5F 12.000MHZ
X701	EI-368825M	OSC X'TAL C-002RX 32.768KHZ
X702	EI-408543J	OSC CE CHIP FAR-C4CD04000-M20R

8. PRE AMP P.C BOARD

Ref.No.	Part No.	Description
D901	ED-386031J	D SILICON CHIP MA110-TW
IC901	EI-412017J	IC HA118041MP-ER
P915	EJ-412025J	PLUG C.53268-1890 18P
TR901	ET-408616J	TR CHIP 2SB1462 R.S
TR902	ET-408616J	TR CHIP 2SB1462 R.S
TR903	ET-408617J	TR CHIP 2SD2216 R.S
TR904	ET-408617J	TR CHIP 2SD2216 R.S
TR905	ET-408880J	TR CHIP UN9115
TR906	ET-408886J	TR CHIP UN9213
TR907	ET-408617J	TR CHIP 2SD2216 R.S
TR908	ET-408617J	TR CHIP 2SD2216 R.S
TR909	ET-408617J	TR CHIP 2SD2216 R.S
TR910	ET-408617J	TR CHIP 2SD2216 R.S
TR911	ET-408617J	TR CHIP 2SD2216 R.S
TR912	ET-408617J	TR CHIP 2SD2216 R.S
TR913	ET-408883J	TR CHIP UN9113
TR914	ET-408617J	TR CHIP 2SD2216 R.S
TR915	ET-404465J	TR CHIP UN921D
TR916	ET-408617J	TR CHIP 2SD2216 R.S
TR917	ET-408880J	TR CHIP UN9115 [PV-M4/F]
TR918	ET-408617J	TR CHIP 2SD2216 R.S

9. MIC AMP P.C BOARD

Ref.No.	Part No.	Description
TR651	ET-410241J	TR D-CHIP XP4601 TWT08E
TR652	ET-410239J	TR D-CHIP XP4401 TWT08E
TR653	ET-410422J	TR FET CHIP 2SK1332-3 TLT08E
TR654	ET-408617J	TR CHIP 2SD2216 R.S
TR655	ET-410239J	TR D-CHIP XP4401 TWT08E
TR656	ET-386030J	TR CHIP 2SC4081 R,S
TR661	ET-410241J	TR D-CHIP XP4601 TWT08E [PV-M4/F]
TR662	ET-410239J	TR D-CHIP XP4401 TWT08E [PV-M4/F]
TR663	ET-410422J	TR FET CHIP 2SK1332-3 TLT08E [PV-M4/F]
TR664	ET-408617J	TR CHIP 2SD2216 R.S [PV-M4/F]
TR665	ET-410239J	TR D-CHIP XP4401 TWT08E [PV-M4/F]
TR666	ET-386030J	TR CHIP 2SC4081 R,S [PV-M4/F]

10. CAMERA (1) P.C BOARD

Ref.No.	Part No.	Description
D301	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D302	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D303	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D304	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D306	ED-386024J	D SILICON CHIP DA204U
D307	ED-410589J	D LED C.CL180URCTS RED T08E
IC301	EI-408550J	IC CXD1172AM-T3
IC302	EI-403658J	IC LB1830M
IC303	EI-408551J	IC TB6504F-EL
IC304	EI-410133J	IC AN1324NS
IC305	EI-410133J	IC AN1324NS
IC308	EI-408552J1	IC MB636128 DAF02-FSY
IC309	EI-408501J1	IC M37451M8-224FP EMZCMR2
IC310	EI-410169J	IC ST24C02AM1013TR
IC311	EI-410137J	IC MC74HC02AFR
IC312	EI-410134J	IC AN1393S
IC313	EI-410136J	IC MC74HC4002FR
IC314	EI-410132J	IC AN1339S
IC315	EI-410131J	IC MC34074DR
IC316	EI-410135J	IC MC74HC4066FR
J302	EJ-408592J	SOCKET C.CPB8518-0151 18P T24E
J303	EJ-408592J	SOCKET C.CPB8518-0151 18P T24E
P304	EJ-412039J	PLUG C.52396-2090 20P
P305	EJ-408513J	PLUG C.52396-2490 24P
P306	EJ-412102J	PLUG C.53261-1290 12P
TR301	ET-408617J	TR CHIP 2SD2216 R.S
TR304	ET-408617J	TR CHIP 2SD2216 R.S
TR305	ET-408617J	TR CHIP 2SD2216 R.S
TR306	ET-410240J	TR D-CHIP XP4501 TWT08E
TR307	ET-410241J	TR D-CHIP XP4601 TWT08E
TR310	ET-408616J	TR CHIP 2SB1462 R.S
TR311	ET-408886J	TR CHIP UN9213
TR313	ET-408880J	TR CHIP UN9115
TR314	ET-408886J	TR CHIP UN9213
TR315	ET-410241J	TR D-CHIP XP4601 TWT08E
TR319	ET-408617J	TR CHIP 2SD2216 R.S
TR320	ET-408617J	TR CHIP 2SD2216 R.S
TR324	ET-408617J	TR CHIP 2SD2216 R.S
TR325	ET-403663J	TR CHIP DTC124TU
TR326	ET-403804J	TR CHIP DTC124EE
VR301	EV-404158J	R S-FIX C. T08 TMC3KTR 104
X302	EI-408517J	OSC CE CHIP FAR-C4CD12000M02-R

11. CAMERA (2) P.C BOARD

Ref.No.	Part No.	Description
D101	ED-394636J	D VARACTOR CHIP 1SV200
D102	ED-405339J	D SILICON CHIP DA115
FL101	EH-405601J	FILTER LC CHIP RXV-5YCN
FL102	EH-403826J	FILTER LC CHIP RZV-25QN
IC101	EI-386023J	IC AN1358S-T1
IC102	EI-408507J	IC AN2145FHP
IC103	EI-403502J	IC MN3820S
IC104	EI-403580J	IC AN2457SB
IC105A	EI-403505J	IC M62352GP [PV-M2/F]
IC105B	EI-405377J	IC MB88346APFV EF [PV-M4/F]
IC106A	EI-403505J	IC M62352GP [PV-M2/F]
IC106B	EI-405377J	IC MB88346APFV EF [PV-M4F/]
IC107	EI-410131J	IC MC34074DR
IC108	EI-386023J	IC AN1358S-T1
IC109	EI-410172J	IC MN5151H
IC110	EI-401280J	IC MN73033XRA
IC111	EI-403519J	IC AN2012SB
IC112	EI-410139J	IC SC7S04FER
IC113	EI-410138J	IC SC14S71FER
P101	EJ-412025J	PLUG C.53268-1890 18P
P102	EJ-408593J	PLUG C.CPB8618-0151 18P T24E
P103	EJ-408593J	PLUG C.CPB8618-0151 18P T24E
P128	EJ-403630J	PLUG C.53263-1490 14P
TR101	ET-410241J	TR D-CHIP XP4601 TWT08E
TR102	ET-408617J	TR CHIP 2SD2216 R.S
TR103	ET-408616J	TR CHIP 2SB1462 R.S
TR104	ET-403561J	TR CHIP 2SC4617 R
TR105	ET-408617J	TR CHIP 2SD2216 R.S
TR106	ET-408617J	TR CHIP 2SD2216 R.S
TR107	ET-410239J	TR D-CHIP XP4401 TWT08E
TR108	ET-408617J	TR CHIP 2SD2216 R.S
TR109	ET-408617J	TR CHIP 2SD2216 R.S
TR110	ET-408617J	TR CHIP 2SD2216 R.S
TR111	ET-408617J	TR CHIP 2SD2216 R.S
TR112	ET-410240J	TR D-CHIP XP4501 TWT08E
TR113	ET-408617J	TR CHIP 2SD2216 R.S
TR114	ET-410241J	TR D-CHIP XP4601 TWT08E
TR115	ET-408616J	TR CHIP 2SB1462 R.S
TR116	ET-408616J	TR CHIP 2SB1462 R.S
TR117	ET-408616J	TR CHIP 2SB1462 R.S
TR120	ET-403559J	TR D-CHIP UMW1
VC101	EC-408476J	C S-FIX CHIP T12 TZBX4P300AA
X101	EI-410175J	OSC X,TAL C.JXO-3F 19.3125MHZ
X102	EI-410176J	OSC X,TAL C.CX49F 17734.475KHZ

12. CCD P.C BOARD

Ref.No.	Part No.	Description
D1	ED-405339J	D SILICON CHIP DA115
D2	ED-405339J	D SILICON CHIP DA115
IC1	EI-410627J	IC UPD16506GR-8JG
J1	EJ-403813J	SOCKET C.52357-1890 18P
J2	EJ-403642J	SOCKET C.DICC-C16A1-SM1 [CCD SOCKET]
TR1	ET-408616J	TR CHIP 2SB1462 R.S
TR2	ET-408617J	TR CHIP 2SD2216 R.S
TR4	ET-408617J	TR CHIP 2SD2216 R.S
TR5	ET-403561J	TR CHIP 2SC4617 R

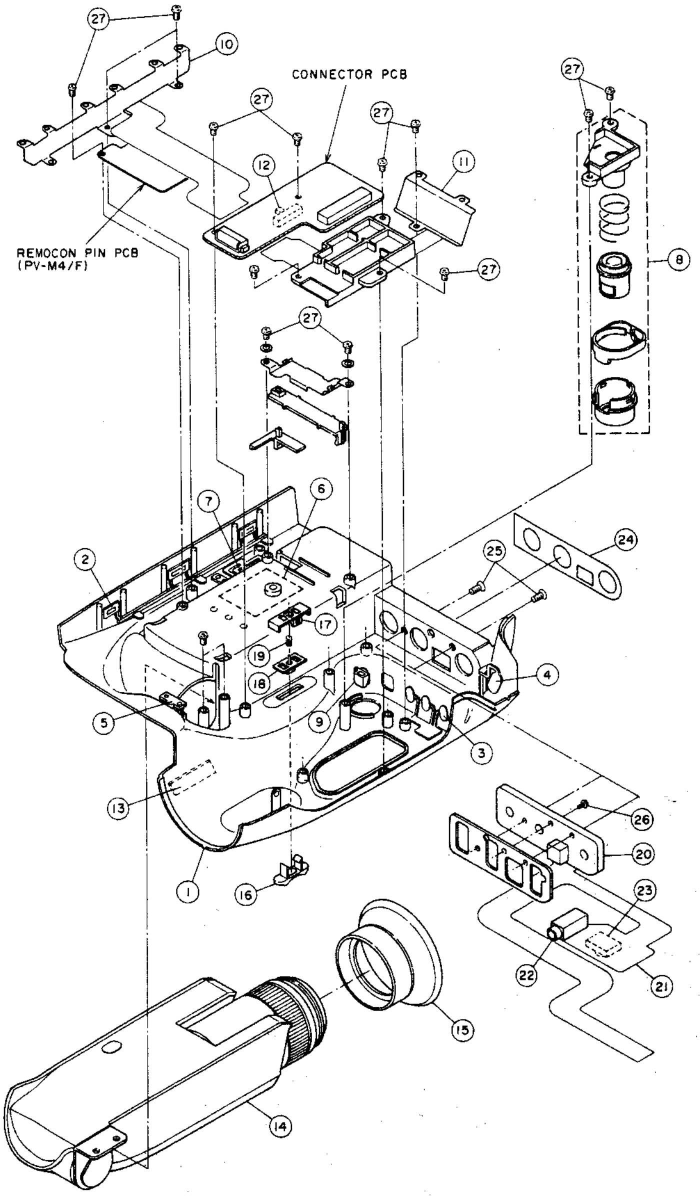
13. POWER SUPPLY P.C BOARD

Ref.No.	Part No.	Description
D701	ED-380715J	D SILICON ERB83-004 40/1.7A
D702	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D703	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D704	ED-389579J	D SILICON CHIP RB400D
D705	ED-389579J	D SILICON CHIP RB400D
D706	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D707	ED-389578J	D SILICON CHIP RB451F T106T08E
D709	ED-392394J	D ZENER CHIP MA3039-H TW
D710	ED-386031J	D SILICON CHIP MA110-TW
D711	ED-408555J	D SOHOTTKY CHIP U1GWJ49
D731	ED-410246J	D LED C.BR1102W RED TRT08E
D732	ED-410245J	D LED C.PG1102W GREEN TRT08E
F701	*EF-410226J	FUSE C.SSFC 125V 3.15A T12E
IC701	EI-408534J	IC MB3778PFV
IC702	EI-408534J	IC MB3778PFV
J701	EJ-408599J	SOCKET INLET HEC3600-01-110 [DC JACK]
J709	EJ-412027J	SOCKET C.52365-2290 22P
L701	EO-410197J	COILFIX CHIP CI-6 T12 220M
L702	EO-410197J	COILFIX CHIP CI-6 T12 220M
L703	EO-410197J	COILFIX CHIP CI-6 T12 220M
L704	EO-410198J	COILFIX CHIP CF-8S T16 220M
L705	EO-410197J	COILFIX CHIP CI-6 T12 220M
L706	EO-403845J	COILFIX CHIP NLC453232T12 330K
L707	EO-410199J	COILFIX CHIP CF-8S T16 470M
L708	EO-390292J	COILFIX CHIP NLC322522T08 470K
L709	EO-390293J	COILFIX CHIP NLC322522T08 101K
L710	EO-390293J	COILFIX CHIP NLC322522T08 101K
L711	EO-410198J	COILFIX CHIP CF-8S T16 220M
L712	EO-410197J	COILFIX CHIP CI-6 T12 220M
SF701	*EF-404063J	FUSE ICP-F50 50V 2.0A
SF702	*EF-404063J	FUSE ICP-F50 50V 2.0A
SF703	*EF-404063J	FUSE ICP-F50 50V 2.0A
T701	*EO-408538J	COILFIX CHIP ELL-06T*****
TB701	EJ-408204J	TERMINAL BATTERY PART
TB702	EJ-408204J	TERMINAL BATTERY PART
TB703	EJ-408206J	TERMINAL (+)
TB704	EJ-403173J	TERMINAL (-)
TR701	ET-410433J	TR CHIP 2SB1124 S,T,U
TR702	ET-410433J	TR CHIP 2SB1124 S,T,U
TR704	ET-410433J	TR CHIP 2SB1124 S,T,U
TR705	ET-410433J	TR CHIP 2SB1124 S,T,U
TR707	ET-403851J	TR.CHIP 2SD2150 R,S
TR708	ET-408617J	TR CHIP 2SD2216 R.S
TR709	ET-386028J	TR CHIP 2SB815 B6 TAT08E
TR710	ET-408617J	TR CHIP 2SD2216 R.S
TR711	ET-403851J	TR.CHIP 2SD2150 R,S
TR732	ET-408886J	TR CHIP UN9213
VR702	EV-404154J	R S-FIX C. T08 TMC3KTR 471
VR703	EV-404154J	R S-FIX C. T08 TMC3KTR 471

14. CONNECTOR P.C BOARD

Ref.No.	Part No.	Description
D101	ED-386031J	D SILICON CHIP MA110-TW
D102	ED-386024J	D SILICON CHIP DA204U
P111	EJ-408513J	PLUG C.52396-2490 24P
PH101	ET-410468J	DETECTOR GP1U561
SW101	ES-413067J	SW SLIDE SSSS81 01-03*
TR101	ET-386053J	TR CHIP DTA143EU
TR102	ET-386053J	TR CHIP DTA143EU
TR103	ET-410150J	TR CHIP 2SB1218A R,S
TR104	ET-405625J	TR CHIP 2SD1819A-TW R,S
TR105	ET-405625J	TR CHIP 2SD1819A-TW R,S

UPPER CASE BLOCK

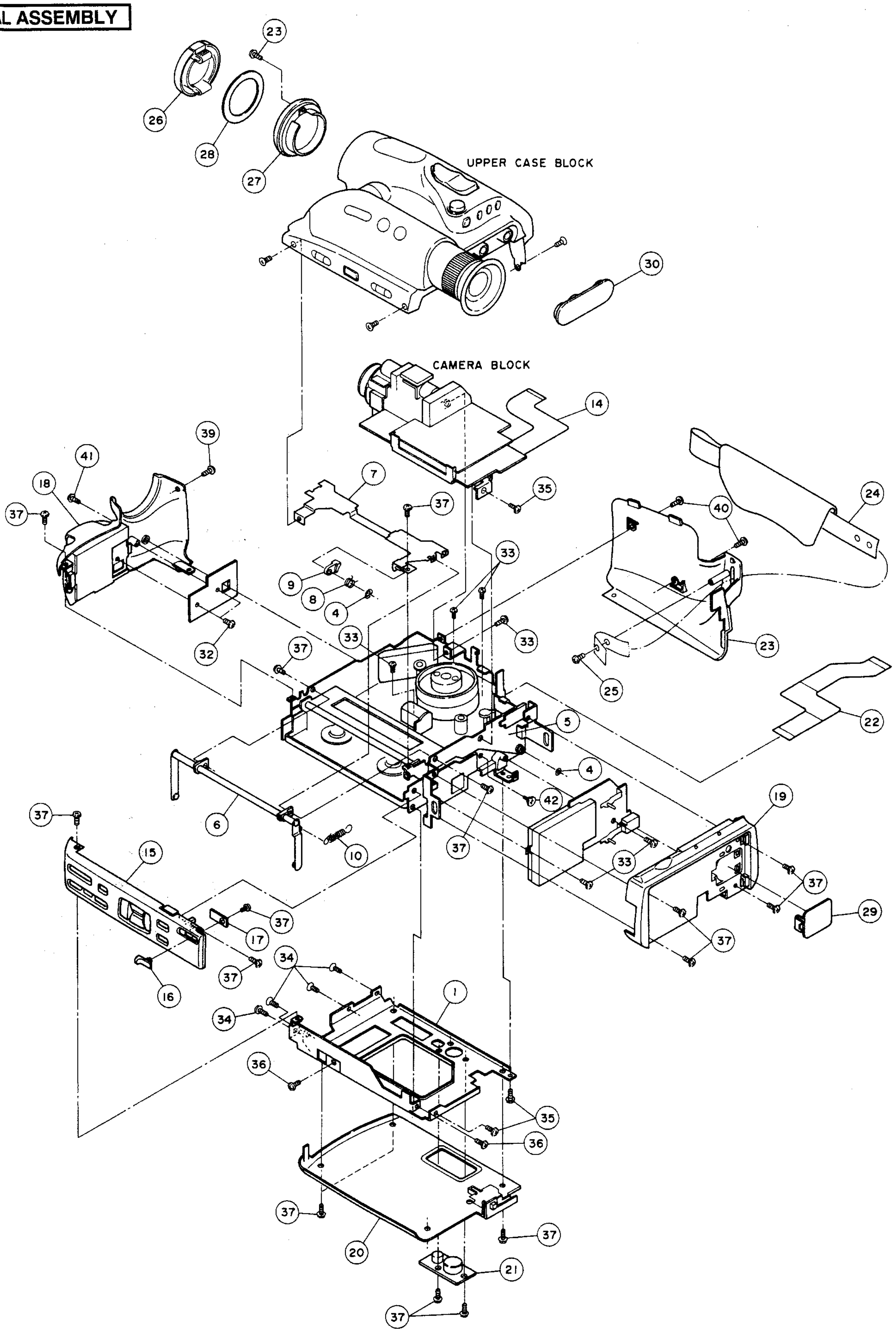


15. UPPER CASE BLOCK

Ref.No.	Part No.	Description
1A	SP-409789J	CASE UPPER M2
1B	SP-404408J	CASE UPPER M2F
1C	SP-409788J1	CASE UPPER M4
1D	SP-404407J1	CASE UPPER M4F
2	SK-409790J1	BUTTON SIDE
3	SK-409791J1	BUTTON REAR
4	SK-409793J	BUTTON REC
5	SZ-409794J	LENS LED (F)
6	SK-410860J	BUTTON OP PART [PV-M2/F]
7A	SK-409795J	BUTTON REMOCON E [PV-M4]
7B	SK-404409J	BUTTON REMOCON F [PV-M4F]
8	SZ-413607J	HOLDER SENSER PART [PV-M4/F]
9	SK-409852J	BUTTON SENSER [PV-M4/F]
10A	ES-410235J	OPERATION H M2 [PV-M2/F]
10B	ES-410234J	OPERATION H M4 [PV-M4/F]
11	ES-410236J	OPERATION TW
12	ES-413067J	SW SLIDE SSSS81 01-03*
13	SM-410858J1	NAME PLATE AKAI M4-S [PV-M4/F]
14A	VC-V3013A330E	E.V.F BLK PV-M2
14B	VC-V3013A330F	E.V.F BLK PV-M2F
14C	VC-V3013A330C	E.V.F BLK PV-M4
14D	VC-V3013A330D	E.V.F BLK PV-M4F
15	ZS-409816J	CAP LENS VF
16	SK-409802J	KNOB POW
17	SZ-409804J	SLIDE POW
18	SK-409805J	BUTTON POW
19	ZG-409806J	SP PUSH POW
20A	EJ-410223J	JACK PLATE AV *M2 [PV-M2/F]
20B	EJ-410222J	JACK PLATE AV *M4 [PV-M4/F]
21	EA-404434J	PCB FLEXIBLE AV JACK
22	EJ-404433J	PHONE J 3P HSJ1424-01-500A 3.5
23	ES-403634J	SW TACT SKEYAB
24A	SE-404412J1	PLATE AV M2 [PV-M2]
24B	SE-404413J1	PLATE AV M2F [PV-M2F]
24C	SE-404410J1	PLATE AV MS8 [PV-M4]
24D	SE-404411J1	PLATE AV MS8F [PV-M4F]
25	ZS-412177J	CTS17X05STL BNI PS3
26	ZS-377198	PAN17X04STL BZN PS1
27	ZS-409970J	BT PAN17X04STL BZN PS1
28	EJ-408209J1	PLATE REMOCON PART [PV-M4/F,REMOCON PIN PCB]

NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

FINAL ASSEMBLY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UPPER CASE BLOCK
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CAMERA BLOCK
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16. FINAL ASSEMBLY

Ref.No.	Part No.	Description
1	MZ-V3013A150A	COVER MECHA BLK PV-MS8
4	ZW-392226J	SLIT W16X040X050PSL
5	MZ-409827J	HOLDER LENS (1) PART
6	ML-409761J	LEVER MAIN PART
7	MZ-409771J	HOLDER LENS (3) PART
8	ZG-409863J	SP TORSION LEVER PRESS
9	ML-409774J	LEVER PRESS
10	ZG-409775J	SP PULL LEVER MAIN (L)
14	EA-410230J	PCB FLEXIBLE CAMERA MAIN
15A	ES-410219J	OPERATION A M2
15B	ES-404399J	OPERATION A M2F FRENCH
15C	ES-410221J	OPERATION A M4
15D	ES-404397J	OPERATION A M4F FRENCH
16	SK-409723J	KNOB OPEN
17	ML-409725J	SLIDE OPEN
18A	EY-410204J	MIC M2
18B	EY-404401J	MIC M2F FRENCH
18C	EY-410203J	MIC M4
18D	EY-404404J	MIC M4F FRENCH
19A	SP-409731J1	CASE BATTERY M2
19B	SP-409730J1	CASE BATTERY M4
20A	BD-V3013A310C	CASE BOTTOM BLK PV-M2
20B	BD-V3013A310B	CASE BOTTOM BLK PV-M4
21	SZ-409733J	HOLDER STAND INSERT PART
22	EA-410233J	PCB FLEXIBLE OP MAIN
23A	SP-409833J1	CASE GRIP M2
23B	SP-409832J1	CASE GRIP M4
24	VC-410520J	BELT GRIP
25	ZS-404011J	BT PAN20X06STL BZN C070
26	VC-409840J	CAP LENS M2
27A	VC-409737J	HOOD LENS M2
27B	VC-409736J	HOOD LENS M4
28A	SE-409739J	PLATE LENS M2E
28B	SE-404419J	PLATE LENS M2F
29	SC-403178J1	COVER BATTERY
30	SC-409913J	CAP AV OUT
31	ZS-390458J	BT PAN17X03STL BZN
32	ZS-409964J	BT PAN17X03STL BZN PS1
33	ZS-409970J	BT PAN17X04STL BZN PS1
34	ZS-394280J	CTS17X02STL BZN PS1
35	ZS-412192J	PAN17X025STL BZN PS1
36	ZS-374452	PAN17X03STL BZN PS1
37	ZS-390433J	PAN17X03STL BZN PS3
38	ZS-412193J	PAN17X08STL BZN PS1
39	ZS-412196J	OCS17X03STL BZN PS3
40	ZS-412195J	OCS17X04STL BZN PS3
41	ZS-412197J	OCS17X08STL BZN PS3
42	ZS-409830J	M.SCREW CHASSIS

NOTE:

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

17. ACCESSARY

Ref.No.	Part No.	Description
1A	AV-403702J	AV CABLE VW-300 [PV-M2]
1B	AV-403703J	AV CABLE VW-321 [PV-M2F]
1C	AV-410206J	AV CABLE VW-301 [PV-M4]
1D	AV-410207J	AV CABLE VW-322 [PV-M4F]
2	AV-403790J	CORD LLP0083-2000 DC-DC
3	AV-404396J	SHOULDER STRAP SB-101
5A	AV-B1045A010C	REMOCON BLK RC-M4 [PV-M4]
5B	AV-B1045A010D	REMOCON BLK RC-M4F [PV-M4F]

18. AC ADAPTOR UNIT (VA-300)

Ref.No.	Part No.	Description
C2	EC-733237J	C EC 470 400V
D1	ED-732853J	D SILICON S1WB (A) 60
D2	ED-371510	D SILICON ERA22-08Y F05
D3	ED-385935J	D SILICON ERA22-04V3 T26 400/5
D4	ED-733238J	D SILICON ERA15-01V
D5	ED-733239J	D SILICON 1SS133T-77
D21	ED-733246J	D SILICON ESAB92M-02
D22	ED-733247J	D SILICON ERC81-004L7
F1	EF-733244J	FUSE 250V 1A
IC21	EI-718598	IC AN8005
IC31	EI-386011J	IC BA10358F
IC51	EI-733260J	IC FA5307S
IC71	EI-733262J	IC HA012612S
JK	EJ-733256J	JACK DC LGP6501-0100
L1	EH-733241J	FILTER UF1922S4-153
L2	EH-733242J	FILTER YU41206
L21	EO-733254J	COIL SN5-1700
L22	EO-733255J	COIL HA31254A
L23	EO-733255J	COIL HA31254A
LED21	ED-733249J	D LED SLR-34VR
LED22	ED-725278J	D LED SLR-34MC70F GREEN
PHC1	ET-733252J	PHOTO COUPLER PC111LS
Q1	ET-733245J	TR FET 2SK951
Q21	ET-733251J	TR 2SB952
Q22	ET-382952J	TR DTC123ES
Q23	ET-370634	TR DTA143XS
Q71	ET-732638J	TR CHIP DTC144EK
SW1	ES-733257J	SW MICRO MSS-8-2
T1	BT-733243J	TRANS ETS22K867A
TF1	EF-733253J	FUSE THEERMO S3
VR21	EV-405657J	R S-FIX H T05 KVSF637T 0.1W103
X21	EI-382875J	OSC CE CST4.00MGW 4MHZ
ZD1	ED-724036J	D ZENER MTZJ27D
ZD2	ED-724036J	D ZENER MTZJ27D
ZD21	ED-717552	D ZENER H MA4051-M
ZD22	ED-733248J	D ZENER MTZJ5.6CT-77
1	BA-733293J	PC SUB (1) BLK
2	BA-733294J	PC SUB (2) BLK
3	*EW-733263J	AC CORD HL21254C (EG)
4	*EW-733264J	AC CORD HL21254D (EK)
5	*EW-733265J	AC CORD HL21254E (EA)

INDEX

Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.
AVB1045A010C	17-5A	ED404449J	7-D704	EI405377J	11-IC105B	EJ408544J	7-P5
AVB1045A010D	17-5B	ED404449J	7-D705	EI405377J	11-IC106B	EJ408544J	7-P711
AV403702J	17-1A	ED404449J	7-D706	EI408383J	7-IC203	EJ408545J	7-P710
AV403703J	17-1B	ED404449J	7-D707	EI408501J1	10-IC309	EJ408592J	10-J302
AV403790J	17-2	ED404449J	7-D708	EI408507J	11-IC102	EJ408592J	10-J303
AV404396J	17-3	ED404449J	7-D709	EI408517J	10-X302	EJ408593J	11-P102
AV410206J	17-1C	ED405339J	11-D102	EI408520J2	7-IC303	EJ408593J	11-P103
AV410207J	17-1D	ED405339J	12-D1	EI408522J	7-IC301	EJ408599J	13-J701
BA733293J	18-1	ED405339J	12-D2	EI408523J	7-IC307	EJ408621J	7-P17
BA733294J	18-2	ED408518J	7-D302	EI408529J	7-X302	EJ410222J	15-20B
BA733301J	6-1A	ED408518J	7-D303	EI408530J	7-X301	EJ410223J	15-20A
BA733302J	6-1B	ED408555J	10-D301	EI408534J	13-IC701	EJ412003J	7-P308
BA733303J	6-2A	ED408555J	10-D302	EI408534J	13-IC702	EJ412025J	8-P915
BA733304J	6-2B	ED408555J	10-D303	EI408540J1	7-IC701	EJ412025J	11-P101
BA733305J	6-3A	ED408555J	10-D304	EI408541J	7-IC702	EJ412027J	13-J709
BA733306J	6-3B	ED408555J	13-D702	EI408543J	7-X702	EJ412028J	7-J15
BA733307J	6-4A	ED408555J	13-D703	EI408550J	10-IC301	EJ412032J	7-P309
BA733308J	6-4B	ED408555J	13-D706	EI408551J	10-IC303	EJ412039J	10-P304
BA733309J	6-5A	ED408555J	13-D711	EI408552J1	10-IC308	EJ412102J	10-P306
BA733310J	6-5B	ED410215J	3-3	EI408556J	7-IC501	EJ733256J	18-JK
BA733311J	6-6A	ED410245J	13-D732	EI408556J	7-IC502	EO390292J	13-L708
BA733312J	6-6B	ED410246J	13-D731	EI408557J	7-IC503	EO390293J	13-L709
BA733313J	6-7A	ED410589J	10-D307	EI408571J	7-IC1	EO390293J	13-L710
BA733314J	6-7B	ED412061J	7-D2	EI408572J	7-IC2	EO403845J	13-L706
BBV3013A020A	3-81	ED412092J	7-D501	EI408574J	7-IC201	EO408538J	13-T701
BDV3013A310B	16-20B	ED717552	18-ZD21	EI408612J	7-IC305	EO410197J	13-L701
BDV3013A310C	16-20A	ED724036J	18-ZD1	EI408628J	7-IC202	EO410197J	13-L702
BHV3013A400B	2-1	ED724036J	18-ZD2	EI408629J	7-IC204	EO410197J	13-L703
BLV3013A120A	3-70	ED725278J	18-LED22	EI408629J	7-IC205	EO410197J	13-L705
BM410228J	3-63	ED732853J	18-D1	EI409981J	5-4	EO410197J	13-L712
BM410229J	3-75	ED733238J	18-D4	EI410131J	10-IC315	EO410198J	13-L704
BM733285J	4-3	ED733239J	18-D5	EI410131J	11-IC107	EO410198J	13-L711
BM733286J	4-4	ED733246J	18-D21	EI410132J	10-IC314	EO410199J	13-L707
BO410212J	5-1	ED733247J	18-D22	EI410133J	10-IC304	EO733254J	18-L21
BT733243J	18-T1	ED733248J	18-ZD22	EI410133J	10-IC305	EO733255J	18-L22
BVV3013A070A	3-52	ED733249J	18-LED21	EI410134J	10-IC312	EO733255J	18-L23
BVV3013A080A	3-56	EF404063J	13-SF701	EI410135J	10-IC316	ES403634J	15-23
BVV3013A130A	3-74	EF404063J	13-SF702	EI410136J	10-IC313	ES404397J	16-15D
BVV3013A200A	3-76	EF404063J	13-SF703	EI410137J	10-IC311	ES404399J	16-15B
EA404434J	15-21	EF410226J	13-F701	EI410138J	11-IC113	ES408905J	3-8
EA409984J	3-1	EF733244J	18-F1	EI410139J	11-IC112	ES408906J	3-9
EA410230J	16-14	EF733253J	18-TF1	EI410169J	10-IC310	ES408907J	3-10
EA410233J	16-22	EH403826J	11-FL102	EI410172J	11-IC109	ES410219J	16-15A
EC408476J	11-VC101	EH404440J	7-FL203	EI410175J	11-X101	ES410221J	16-15C
EC733237J	18-C2	EH405601J	11-FL101	EI410176J	11-X102	ES410234J	15-10B
ED371510	18-D2	EH408559J	7-FL501	EI410179J	7-IC8	ES410235J	15-10A
ED380715J	13-D701	EH408560J	7-FL502	EI410216J	3-2	ES410236J	15-11
ED385935J	18-D3	EH408871J	7-FL1	EI410448J	7-IC3	ES410531J	3-11
ED386024J	10-D306	EH408872J	7-FL2	EI410449J	7-IC4	ES413067J	14-SW101
ED386024J	14-D102	EH408873J	7-FL3	EI410452J	7-IC6	ES413067J	15-12
ED386025J	7-D1	EH408874J	7-FL4	EI410627J	12-IC1	ES733257J	18-SW1
ED386025J	7-D8	EH410178J	7-FL201	EI412017J	8-IC901	ET370634	18-Q23
ED386025J	7-D10	EH412155J	7-FL202	EI414543J	7-IC302	ET382952J	18-Q22
ED386031J	7-D4	EH733241J	18-L1	EI414543J	7-IC306	ET386027J	7-TR36
ED386031J	7-D5	EH733242J	18-L2	EI718598	18-IC21	ET386027J	7-TR221
ED386031J	7-D6	EI368825M	7-X701	EI733260J	18-IC51	ET386028J	7-TR37
ED386031J	7-D7	EI382875J	18-X21	EI733262J	18-IC71	ET386028J	7-TR39
ED386031J	7-D9	EI386011J	18-IC31	EJ403173J	13-TB704	ET386028J	13-TR709
ED386031J	7-D701	EI386023J	11-IC101	EJ403624J	7-P501	ET386029J	7-TR306
ED386031J	8-D901	EI386023J	11-IC108	EJ403630J	11-P128	ET386029J	7-TR307
ED386031J	13-D710	EI401280J	11-IC110	EJ403642J	12-J2	ET386029J	7-TR308
ED386031J	14-D101	EI403502J	11-IC103	EJ403813J	12-J1	ET386029J	7-TR309
ED389578J	13-D707	EI403505J	11-IC105A	EJ404433J	15-22	ET386030J	7-TR10
ED389579J	13-D704	EI403505J	11-IC106A	EJ404451J	7-P307	ET386030J	7-TR16
ED389579J	13-D705	EI403519J	11-IC111	EJ408204J	13-TB701	ET386030J	7-TR501
ED392394J	13-D709	EI403580J	11-IC104	EJ408204J	13-TB702	ET386030J	7-TR502
ED394636J	11-D101	EI403658J	7-IC304	EJ408206J	13-TB703	ET386030J	7-TR503
ED404060J	7-D301	EI403658J	10-IC302	EJ408209J1	15-28	ET386030J	7-TR504
ED404449J	7-D702	EI404438J	7-X201	EJ408513J	10-P305	ET386030J	7-TR506
ED404449J	7-D703	EI404464J	7-IC9	EJ408513J	14-P111	ET386030J	7-TR507

Part No.	Ref. No.
ET386030J	7-TR508
ET386030J	7-TR509
ET386030J	9-TR656
ET386030J	9-TR666
ET386053J	14-TR101
ET386053J	14-TR102
ET403559J	11-TR120
ET403561J	11-TR104
ET403561J	12-TR5
ET403663J	10-TR325
ET403804J	10-TR326
ET403851J	13-TR707
ET403851J	13-TR711
ET404454J	7-TR303
ET404462J	7-TR20
ET404465J	7-TR21
ET404465J	8-TR915
ET405625J	14-TR104
ET405625J	14-TR105
ET408616J	7-TR1
ET408616J	7-TR11
ET408616J	7-TR13
ET408616J	7-TR43
ET408616J	7-TR44
ET408616J	7-TR47
ET408616J	7-TR202
ET408616J	7-TR207
ET408616J	7-TR208
ET408616J	7-TR210
ET408616J	7-TR217
ET408616J	7-TR223
ET408616J	7-TR301
ET408616J	7-TR310
ET408616J	7-TR505
ET408616J	8-TR901
ET408616J	8-TR902
ET408616J	10-TR310
ET408616J	11-TR103
ET408616J	11-TR115
ET408616J	11-TR116
ET408616J	11-TR117
ET408616J	12-TR1
ET408617J	7-TR2
ET408617J	7-TR3
ET408617J	7-TR4
ET408617J	7-TR5
ET408617J	7-TR7
ET408617J	7-TR8
ET408617J	7-TR12
ET408617J	7-TR14
ET408617J	7-TR15
ET408617J	7-TR23
ET408617J	7-TR24
ET408617J	7-TR27
ET408617J	7-TR28
ET408617J	7-TR29
ET408617J	7-TR30
ET408617J	7-TR33
ET408617J	7-TR34
ET408617J	7-TR35
ET408617J	7-TR40
ET408617J	7-TR41
ET408617J	7-TR53
ET408617J	7-TR201
ET408617J	7-TR204
ET408617J	7-TR205
ET408617J	7-TR206
ET408617J	7-TR209
ET408617J	7-TR211
ET408617J	7-TR216
ET408617J	7-TR218
ET408617J	7-TR219
ET408617J	7-TR224
ET408617J	8-TR903
ET408617J	8-TR904
ET408617J	8-TR907
ET408617J	8-TR908
ET408617J	8-TR909
ET408617J	8-TR910
ET408617J	8-TR911
ET408617J	8-TR912
ET408617J	8-TR914
ET408617J	8-TR916
ET408617J	8-TR918
ET408617J	9-TR654
ET408617J	9-TR664
ET408617J	10-TR301
ET408617J	10-TR304
ET408617J	10-TR305
ET408617J	10-TR319
ET408617J	10-TR320
ET408617J	10-TR324
ET408617J	11-TR102
ET408617J	11-TR105
ET408617J	11-TR106
ET408617J	11-TR108
ET408617J	11-TR109
ET408617J	11-TR110
ET408617J	11-TR111
ET408617J	11-TR113
ET408617J	12-TR2
ET408617J	12-TR4
ET408617J	13-TR708
ET408617J	13-TR710
ET408879J	7-TR25
ET408879J	7-TR32
ET408879J	7-TR51
ET408880J	7-TR225
ET408880J	8-TR905
ET408880J	8-TR917
ET408880J	10-TR313
ET408883J	7-TR514
ET408883J	8-TR913
ET408884J	7-TR6
ET408884J	7-TR45
ET408886J	7-TR9
ET408886J	7-TR26
ET408886J	7-TR31
ET408886J	7-TR38
ET408886J	7-TR42
ET408886J	7-TR49
ET408886J	7-TR52
ET408886J	7-TR54
ET408886J	7-TR222
ET408886J	7-TR311
ET408886J	7-TR512
ET408886J	7-TR513
ET408886J	8-TR906
ET408886J	10-TR311
ET408886J	10-TR314
ET408886J	13-TR732
ET410150J	14-TR103
ET410217J	3-5
ET410239J	9-TR652
ET410239J	9-TR655
ET410239J	9-TR662
ET410239J	9-TR665
ET410239J	11-TR107
ET410240J	10-TR306
ET410240J	11-TR112
ET410241J	7-TR302
ET410241J	9-TR651
ET410241J	9-TR661
ET410241J	10-TR307
ET410241J	10-TR315
ET410241J	11-TR101
ET410241J	11-TR114
ET410422J	9-TR653
ET410422J	9-TR663
ET410433J	13-TR701
ET410433J	13-TR702
ET410433J	13-TR704
ET410433J	13-TR705
ET410468J	14-PH101
ET732638J	18-Q71
ET733245J	18-Q1
ET733251J	18-Q21
ET733252J	18-PHC1
ET733287J	4-5
EV404150J	7-VR10
EV404150J	7-VR501
EV404150J	7-VR502
EV404150J	7-VR503
EV404150J	7-VR504
EV404151J	7-VR2
EV404151J	7-VR8
EV404153J	7-VR4
EV404153J	7-VR6
EV404154J	13-VR702
EV404154J	13-VR703
EV404156J	7-VR1
EV404156J	7-VR204
EV404156J	7-VR205
EV404158J	10-VR301
EV405657J	18-VR21
EV406700J	7-VR5
EV406700J	7-VR7
EV406700J	7-VR9
EV408570J	7-VR203
EV408596J	7-VR3
EV408596J	7-VR11
EW733263J	18-3
EW733264J	18-4
EW733265J	18-5
EX404488J	3-69
EY404401J	16-18B
EY404404J	16-18D
EY410203J	16-18C
EY410204J	16-18A
HZ407037J	2-6
MA409235J	2-9
MB406821J	3-20
MB409759J	5-3
MI406823J	3-31
ML406830J1	3-45
ML406838J	3-71
ML406864J1	3-59
ML406924J	3-40
ML406930J	3-14
ML406935J	3-21
ML406938J	3-13
ML406940J1	3-34
ML406944J	3-33
ML409725J	16-17
ML409761J	16-6
ML409774J	16-9
MPV3013A100A	3-58
MR406834J2	3-44
MR406880J	3-65
MR413413J	3-57
MS406871J	3-60
MS406881J	3-48
MS409943J1	3-49
MT406801J	3-29
MT406813J	3-30
MZV3013A150A	16-1
MZ406815J	3-18
MZ406818J	3-19
MZ406845J	3-72
MZ406872J	3-64
MZ406886J	3-42
MZ406887J	3-32
MZ406911J	3-6
MZ406913J	3-7
MZ406914J	3-4
MZ406915J	3-37
MZ406917J	3-41
MZ406918J	3-38
MZ406919J	3-24
MZ406920J	3-26
MZ406922J	3-22
MZ406926J1	3-23
MZ406927J	3-27
MZ407036J	2-4
MZ408631J	2-2
MZ408878J	3-77
MZ409771J	16-7
MZ409827J	16-5
MZ410902J	3-36
MZ411270J	3-78
SC403178J1	16-29
SC409913J	16-30
SE404410J1	15-24C
SE404411J1	15-24D
SE404412J1	15-24A
SE404413J1	15-24B
SE404419J	16-28B
SE409739J	16-28A
SK404409J	15-7B
SK409723J	16-16
SK409790J1	15-2
SK409791J1	15-3
SK409793J	15-4
SK409795J	15-7A
SK409802J	15-16
SK409805J	15-18
SK409852J	15-9
SK410860J	15-6
SM410858J1	15-13
SP404407J1	15-1D
SP404408J	15-1B
SP409730J1	16-19B
SP409731J1	16-19A
SP409788J1	15-1C
SP409789J	15-1A
SP409832J1	16-23B
SP409833J1	16-23A
SZ409733J	16-21
SZ409794J	15-5
SZ409804J	15-17
SZ413607J	15-8
VCV3013A330C	15-14C
VCV3013A330D	15-14D
VCV3013A330E	15-14A
VCV3013A330F	15-14B
VC409736J	16-27B
VC409737J	16-27A
VC409840J	16-26
VC410213J	5-2
VC410520J	16-24

Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.	Part No.	Ref. No.
VC733283J	4-1						
VC733284J	4-2						
VT408632J	2-11						
VT409944J	3-54						
ZG406837J	3-47						
ZG406849J1	3-73						
ZG406869J	3-61						
ZG406870J	3-62						
ZG406885J	3-51						
ZG406921J	3-25						
ZG406925J	3-39						
ZG406933J	3-16						
ZG406943J	3-35						
ZG406976J	2-7						
ZG409775J	16-10						
ZG409806J	15-19						
ZG409863J	16-8						
ZS374452	5-7						
ZS374452	16-36						
ZS377198	2-3						
ZS377198	2-10						
ZS377198	15-26						
ZS390433J	16-37						
ZS390437J	2-5						
ZS390458J	16-31						
ZS394280J	16-34						
ZS404011J	16-25						
ZS409816J	15-15						
ZS409830J	16-42						
ZS409930J	2-8						
ZS409930J	3-17						
ZS409964J	16-32						
ZS409970J	5-5						
ZS409970J	15-27						
ZS409970J	16-33						
ZS409991J	3-53						
ZS409993J	3-12						
ZS409994J	2-12						
ZS409996J	3-50						
ZS412012J	3-55						
ZS412177J	15-25						
ZS412192J	16-35						
ZS412193J	16-38						
ZS412195J	16-40						
ZS412196J	16-39						
ZS412197J	16-41						
ZW387492J	3-79						
ZW390450J	3-15						
ZW392226J	16-4						
ZW409988J	3-46						
ZW409995J	3-28						
ZW412011J	3-80						

AKAI

MODEL PV-M2, M4

SCHEMATIC DIAGRAMS AND PC BOARDS

TABLE OF CONTENTS

I. BLOCK DIAGRAMS

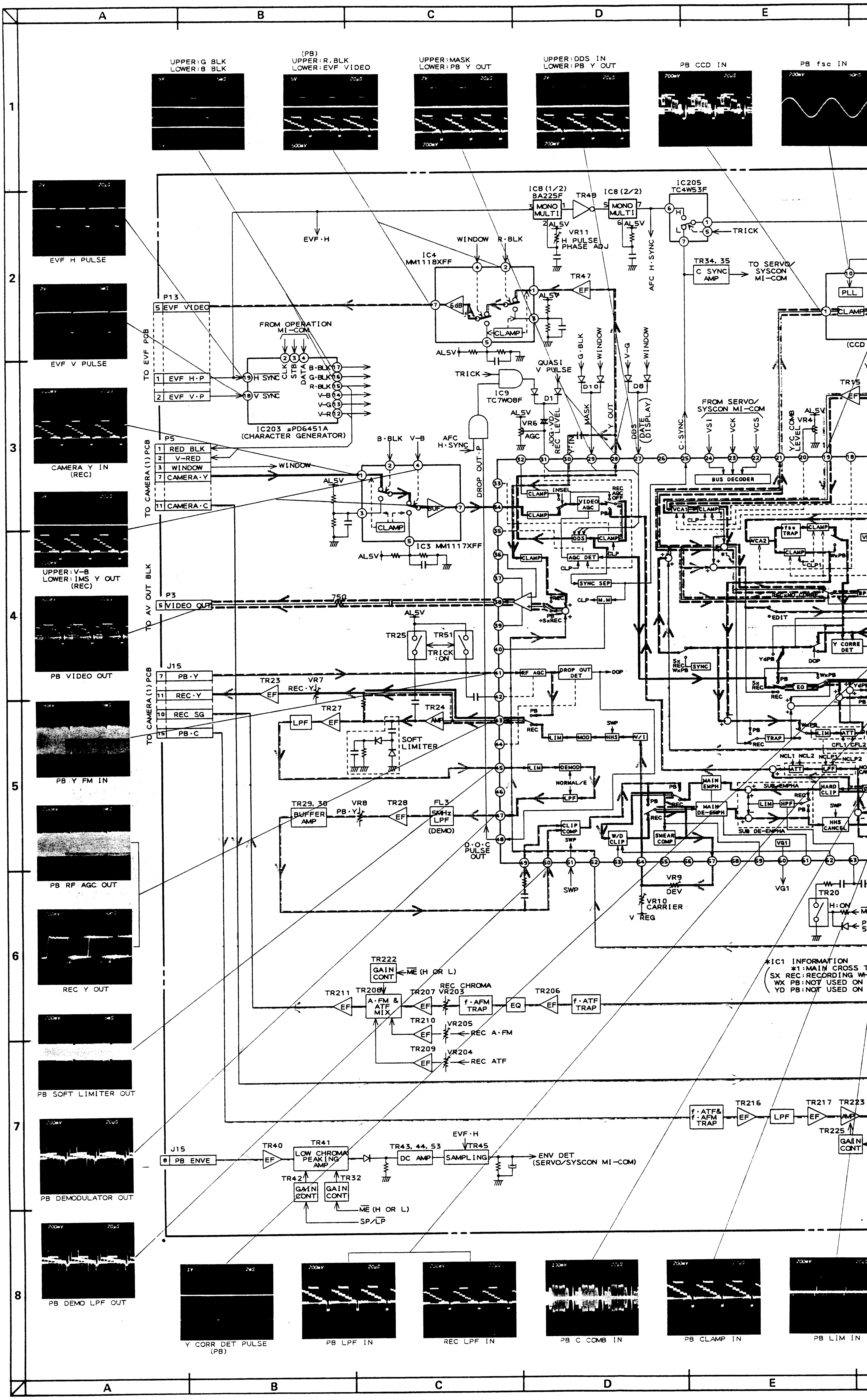
1. VIDEO 3
2. SERVO 4
3. SYSTEM CONTROL 5
4. PV-M4 AUDIO 6
5. PRE AMP 7
6. CAMERA 8

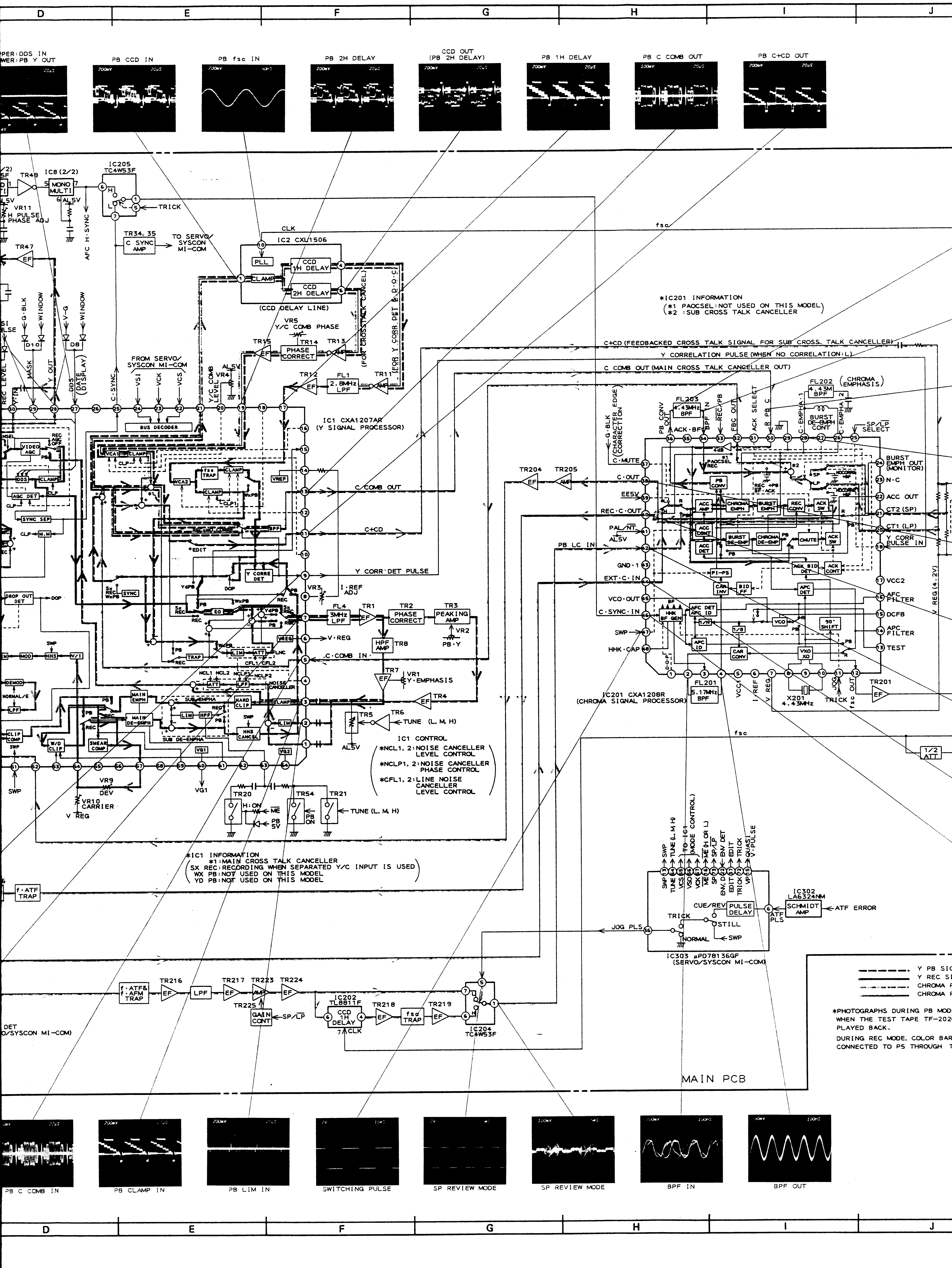
II. SCHEMATIC DIAGRAMS AND PC BOARDS

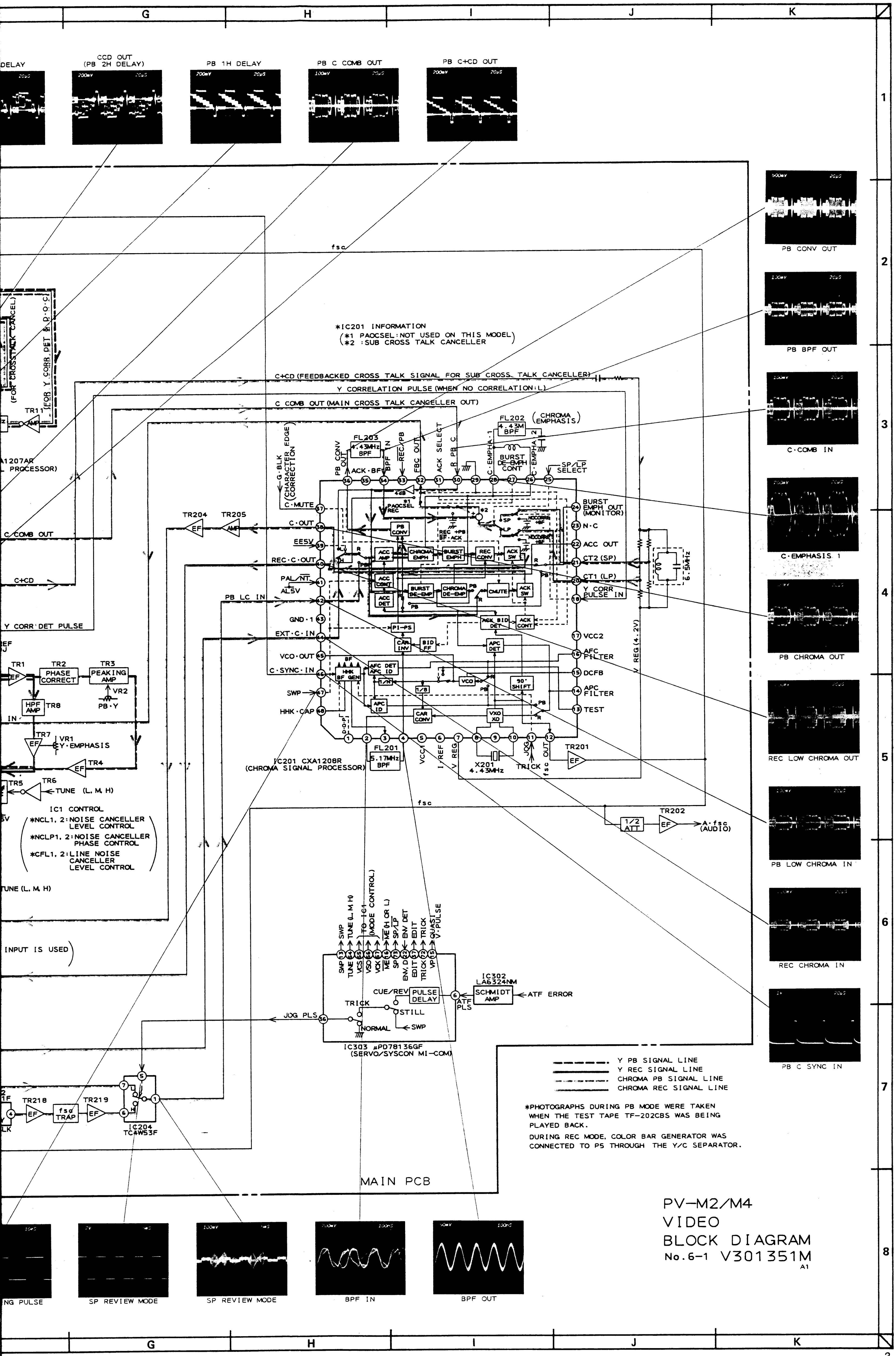
1. PV-M4 CONNECTION DIAGRAM 9
2. PV-M2 CONNECTION DIAGRAM 10
3. POWER SUPPLY & SUB 12
4. CAMERA (1) 14
5. CAMERA (2) 16
6. CCD 18
7. MAIN 1/4 (VIDEO BLOCK) 19
8. PV-M4 MAIN 2/4 (HiFi-AUDIO) 20
9. PV-M2 MAIN 2/4 (HiFi-AUDIO) 21
10. MAIN 3/4 (SERVO/SYSCON) 22
11. MAIN 4/4 (OPERATION BLOCK) 23
12. PRE AMP 26
13. PV-M4 MIC AMP 28
14. PV-M2 MIC AMP (MONO) 30
15. VA-300EA/EK/EG AC ADAPTER 32

III. INFORMATION OF ICs 34

Use these schematic diagrams and PC boards together with the provided service manual.

A
B
C
D
E
1
2
3
4
5
6
7
8
UPPER:G BLK
LOWER:B BLK
(PB)
UPPER:R.BLK
LOWER:EVF VIDEO
UPPER:MASK
LOWER:PB Y OUT
UPPER:DDS IN
LOWER:PB Y OUT
PB CCD IN
PB fsc IN
EVF H PULSE
EVF V PULSE
CAMERA Y IN
(REC)
UPPER:V-B
LOWER:IMS Y OUT
(REC)
PB VIDEO OUT
PB Y FM IN
PB RF AGC OUT
REC Y OUT
PB SOFT LIMITER OUT
PB DEMODULATOR OUT
PB DEMO LPF OUT
Y CORR DET PULSE
(PB)
PB LPF IN
REC LPF IN
PB C COMB IN
PB CLAMP IN
PB LIM IN
IC8(1/2)
BA225F
MONO MULTI
TR48
IC8(2/2)
IC205
TC4W53F
TRICK
VR11
H PULSE PHASE ADJ
AL5V
AFC H·SYNC
EVF·H
WINDOW
R·BLK
IC4
MM1118XFF
6dB
CLAMP
TR47
EF
TR34, 35
C SYNC AMP
TO SERVO/SYSCON MI-COM
PLL
CLAMP
(CCD
P13
EVF VIDEO
TO EVF PCB
EVF H·P
EVF V·P
FROM OPERATION MI-COM
CLK
STB
DATA
H SYNC
V SYNC
B·BLK
G·BLK
R·BLK
V-B
V-G
V-R
IC203 μPD6451A
(CHARACTER GENERATOR)
TRICK
IC9
TC7W08F
D1
QUASI V PULSE
G·BLK
WINDOW
V-G
WINDOW
D10
D8
FROM SERVO/SYSCON MI-COM
VSI
VCK
VCS
Y/C COMB LEVEL
VR4
TR15
P5
TO CAMERA(1)PCB
RED BLK
V-RED
WINDOW
CAMERA·Y
CAMERA·C
B·BLK
V-B
AFC H·SYNC
VR6
AGC
JOG·VD/REC LEVEL
Y·IN
MASK
Y OUT
DDS (DATE DISPLAY)
C·SYNC
DROP OUT·P
BUS DECODER
BUF
CLAMP
IC3 MM1117XFF
INSEL
VIDEO AGC
REC AGC OFF
DDS
AGC DET
SYNC SEP
M.M
VCA1
VCA2
fsc TRAP
CLP
P3
TO AV OUT BLK
VIDEO OUT
75Ω
REC
PB +SxREC
EDIT
Y CORRE DET
DOP
TR25
TR51
TRICK :ON
J15
TO CAMERA(1)PCB
PB·Y
REC·Y
REC SG
PB·C
TR23
VR7
REC·Y
TR27
LPF
EF
TR24
AMP
SOFT LIMITER
RF AGC
DROP OUT DET
DOP
LIM
MOD
HHS
V/I
DEMOD
NORMAL/E
SYNC
EO
TRAP
ATT
CFL1/CFL2
NCL1 NCL2 NCLP1 NCLP2
MAIN EMPH
SUB EMPHA
MAIN DE-EMPH
SUB DE-EMPHA
HARD CLIP
HHS CANCEL
SWP
HPF
TR29, 30
BUFFER AMP
VR8
PB·Y
TR28
FL3
5MHz LPF
(DEMO)
D·O·C PULSE OUT
CLIP COMP
W/D CLIP
SMEAR COMP
VG1
SWP
VR9
DEV
VR10
CARRIER
V REG
VG1
TR20
H:ON
*IC1 INFORMATION
*1:MAIN CROSS T
SX REC:RECORDING W
WX PB:NOT USED ON
YD PB:NOT USED ON
TR222
GAIN CONT
ME (H OR L)
TR211
TR208
A·FM & ATF MIX
TR207
VR203
REC CHROMA
f·AFM TRAP
EQ
TR206
f·ATF TRAP
TR210
VR205
REC A·FM
TR209
VR204
REC ATF
f·ATF& f·AFM TRAP
TR216
LPF
TR217
TR223
TR225
GAIN CONT
J15
PB ENVE
TR40
TR41
LOW CHROMA PEAKING AMP
TR43, 44, 53
DC AMP
EVF·H
TR45
SAMPLING
ENV DET
(SERVO/SYSCON MI-COM)
TR42
GAIN CONT
TR32
GAIN CONT
ME (H OR L)
SP/LP


D
E
F
G
H
I
J
PER:DDS IN
WER:PB Y OUT
PB CCD IN
PB fsc IN
PB 2H DELAY
CCD OUT
(PB 2H DELAY)
PB 1H DELAY
PB C COMB OUT
PB C+CD OUT
TR49
IC8 (2/2)
MONO MULTI
IC205
TC4W53F
TRICK
VR11
H PULSE PHASE ADJ
AFC H-SYNC
TR34, 35
C SYNC AMP
TO SERVO/ SYSCON MI-COM
CLK
fsc
IC2 CXL1506
PLL
CLAMP
CCD 1H DELAY
CCD 2H DELAY
(CCD DELAY LINE)
(FOR CROSSTALK CANCEL)
(FOR Y CORR DET & D.O.C)
TR47
G-BLK
WINDOW
V-G
D10
D8
MASK
Y OUT
DDS
DATE (DISPLAY)
C-SYNC
FROM SERVO/ SYSCON MI-COM
VSI
VCK
VCS
BUS DECODER
Y/C COMB LEVEL
VR4
VR5
Y/C COMB PHASE
TR15
TR14
PHASE CORRECT
TR13
TR12
FL1
2.8MHz LPF
TR11
IC1 CXA1207AR
(Y SIGNAL PROCESSOR)
*IC201 INFORMATION
(*1 PAOCSEL:NOT USED ON THIS MODEL)
(*2 :SUB CROSS TALK CANCELLER)
C+CD (FEEDBACKED CROSS TALK SIGNAL FOR SUB CROSS TALK CANCELLER)
Y CORRELATION PULSE (WHEN NO CORRELATION:L)
C COMB OUT (MAIN CROSS TALK CANCELLER OUT)
VIDEO AGC
DDS
CLAMP
AGC DET
SYNC SEP
M.M
VCA1
VCA2
fsc TRAP
VREF
BPF
C COMB OUT
C+CD
EDIT
Y CORRE DET
Y CORR DET PULSE
VR3
I-REF ADJ
DROP OUT DET
DOP
SYNC
EO
FL4
3MHz LPF
TR1
EF
TR2
PHASE CORRECT
TR3
PEAKING AMP
VR2
PB-Y
V-REG
HPF AMP
TR8
C-COMB IN
TR7
VR1
Y-EMPHASIS
TR4
MOD
HHS
V/I
DEMOD
NORMAL/E
LPF
TRAP
LIM
ATT
LNC
CFL1 CFL2
NCL1 NCL2 NCLP1 NCLP2
NOISE CANCELLER
MAIN EMPH
SUB EMPHA
HARD CLIP
MAIN DE-EMPH
SUB DE-EMPHA
HHS CANCEL
CLIP COMP
W/D CLIP
SMEAR COMP
VG1
VG2
TR5
TR6
TUNE (L, M, H)
AL5V
IC1 CONTROL
*NCL1, 2:NOISE CANCELLER LEVEL CONTROL
*NCLP1, 2:NOISE CANCELLER PHASE CONTROL
*CFL1, 2:LINE NOISE CANCELLER LEVEL CONTROL
SWP
VR9
DEV
VR10
CARRIER
V REG
TR20
H:ON
ME
PB 5V
TR54
PB ON
TR21
TUNE (L, M, H)
*IC1 INFORMATION
*1:MAIN CROSS TALK CANCELLER
SX REC:RECORDING WHEN SEPARATED Y/C INPUT IS USED
WX PB:NOT USED ON THIS MODEL
YD PB:NOT USED ON THIS MODEL
f-ATF TRAP
FL203
4.43MHz BPF
FL202
4.43M BPF
(CHROMA EMPHASIS)
G-BLK
(CHARACTER EDGE CORRECTION)
PB CONV OUT
REC/PB
BPF IN
FBC OUT
ACK SELECT
R PB C
C-EMPHA-1
C-EMPHA-2
BURST DE-EMPH CONT
SP/LP SELECT
ACK-BF
PAOCSEL
C-MUTE
TR204
TR205
C-OUT
EE5V
REC-C-OUT
PAL/NT
PB LC IN
GND-1
EXT-C-IN
VCO-OUT
C-SYNC-IN
SWP
HHK-CAP
PB CONV
ACC AMP
CHROMA EMPH
BURST EMPH
REC CONV
ACK SW
ACC CONT
ACC DET
BURST DE-EMP
CHROMA DE-EMP
CMUTE
ACK BID DET
ACK CONT
PI-PS
CAR INV
BID FF
APC DET
HHK BF GEN
AFC DET AFC ID
1/N
1/8
VCO
90° SHIFT
APC ID
CAR CONV
VXO XO
BURST EMPH OUT (MONITOR)
N-C
ACC OUT
CT2 (SP)
CT1 (LP)
Y CORR PULSE IN
VCC2
AFC FILTER
DCFB
APC FILTER
TEST
V REG (4.2V)
FL201
5.17MHz BPF
VCC
I-REF
V REG
X201
4.43MHz
JOG
TRICK
fsc OUT
TR201
IC201 CXA1208R
(CHROMA SIGNAL PROCESSOR)
fsc
1/2 ATT
SWP
TUNE (L, M, H)
VCS
VCK
VSI
TO IC1 (MODE CONTROL)
ME (H OR L)
SP/LP
ENV DET
EDIT
TRICK
QUASI V-PULSE
IC302
LA6324NM
SCHMIDT AMP
ATF ERROR
CUE/REV
PULSE DELAY
ATF PLS
TRICK
STILL
NORMAL
SWP
JOG PLS
IC303 μPD78136GF
(SERVO/SYSCON MI-COM)
Y PB SIG
Y REC SI
CHROMA F
CHROMA F
*PHOTOGRAPHS DURING PB MOD
WHEN THE TEST TAPE TF-202
PLAYED BACK.
DURING REC MODE, COLOR BAR
CONNECTED TO P5 THROUGH T
f-ATF& f-AFM TRAP
TR216
LPF
TR217
TR223
TR224
TR225
GAIN CONT
SP/LP
IC202
TL8811F
CCD 1H DELAY
CLK
TR218
fsc TRAP
TR219
IC204
TC4W53F
DET
/SYSCON MI-COM)
MAIN PCB
PB C COMB IN
PB CLAMP IN
PB LIM IN
SWITCHING PULSE
SP REVIEW MODE
SP REVIEW MODE
BPF IN
BPF OUT

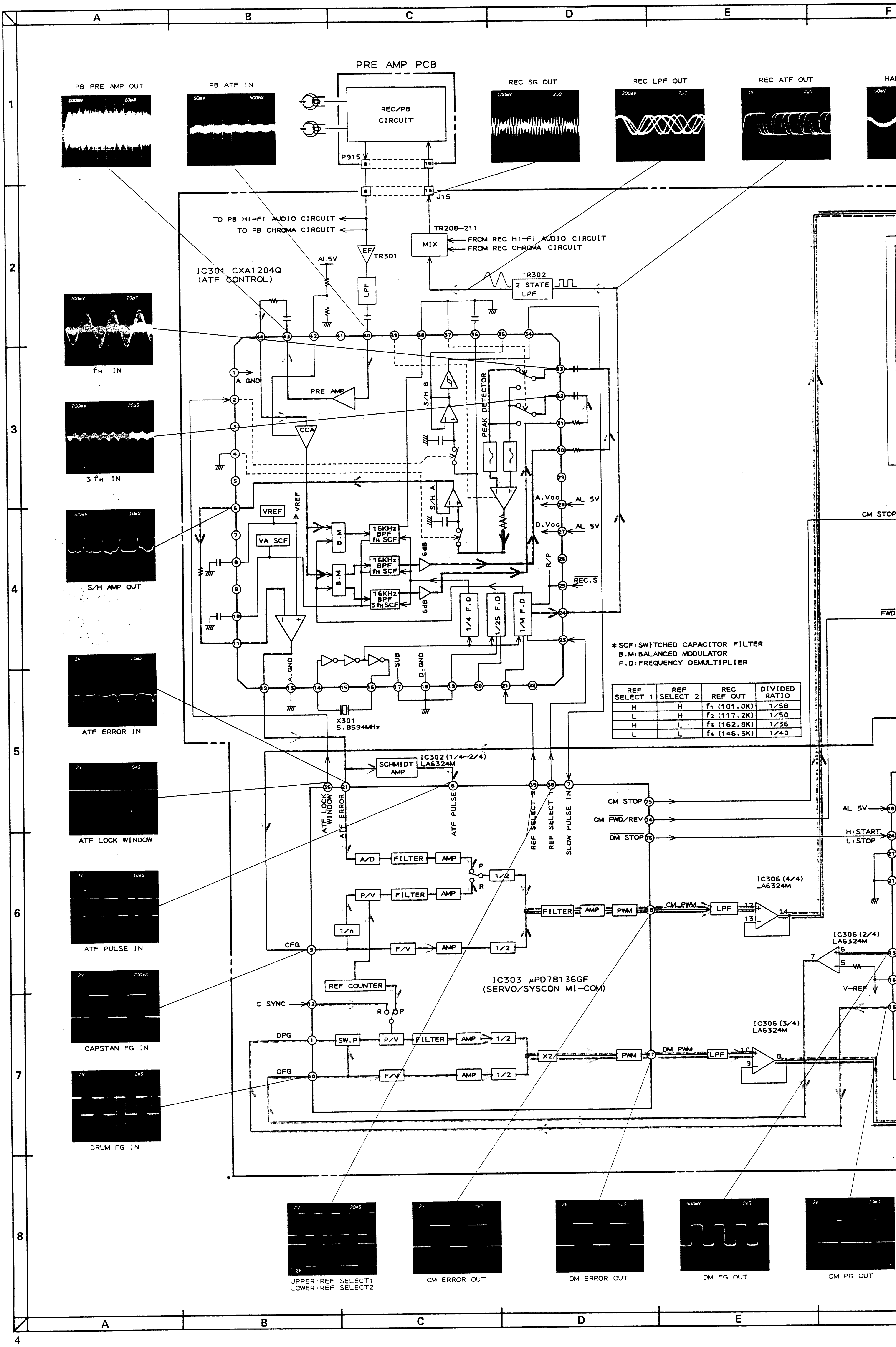

G
H
I
J
K
1
2
3
4
5
6
7
8
DELAY
CCD OUT
(PB 2H DELAY)
PB 1H DELAY
PB C COMB OUT
PB C+CD OUT
PB CONV OUT
PB BPF OUT
C·COMB IN
C·EMPHASIS 1
PB CHROMA OUT
REC LOW CHROMA OUT
PB LOW CHROMA IN
REC CHROMA IN
PB C SYNC IN
NG PULSE
SP REVIEW MODE
SP REVIEW MODE
BPF IN
BPF OUT
fsc
*IC201 INFORMATION
(*1 PAOCSEL: NOT USED ON THIS MODEL)
(*2 : SUB CROSS TALK CANCELLER)
C+CD (FEEDBACKED CROSS TALK SIGNAL FOR SUB CROSS TALK CANCELLER)
Y CORRELATION PULSE (WHEN NO CORRELATION: L)
C COMB OUT (MAIN CROSS TALK CANCELLER OUT)
(FOR CROSSTALK CANCEL)
(FOR Y CORR DET & D·O·C)
TR11
AMP
A1207AR
PROCESSOR)
FL203
4.43MHz BPF
FL202
4.43M BPF
(CHROMA EMPHASIS)
PB CONV OUT
ACK·BF
BPF IN
REC/PB
FBC OUT
ACK SELECT
R PB C
C·EMPHA·1
C·EMPHA·2
BURST DE-EMPH CONT
SP/LP SELECT
G·BLK (CHARACTER EDGE CORRECTION)
C·MUTE
C·OUT
EE5V
REC·C·OUT
PAL/NT
AL5V
PB LC IN
GND·1
EXT·C·IN
VCO·OUT
C·SYNC·IN
SWP
HHK·CAP
TR204
EF
TR205
AMP
C COMB OUT
C+CD
Y CORR DET PULSE
PB CONV
ACC AMP
CHROMA EMPH
BURST EMPH
REC CONV
ACK SW
ACC CONT
ACC DET
BURST DE-EMP
CHROMA DE-EMP
CMUTE
ACK SW
ACK BID DET
ACK CONT
P1-PS
CAR INV
BID FF
APC DET
HHK BF GEN
AFC DET AFC ID
1/N
1/8
VCO
90° SHIFT
APC ID
CAR CONV
VXO XO
4dB
*1 PAOCSEL
REC
*2
SP
LP
NOCORRE
REC +PB BF·ACK
D·O·P
BURST EMPH OUT (MONITOR)
N·C
ACC OUT
CT2 (SP)
CT1 (LP)
Y CORR PULSE IN
VCC2
AFC FILTER
DCFB
APC FILTER
TEST
6.5MHz
V REG (4.2V)
FL201
5.17MHz BPF
VCC
I·REF
V REG
X201
4.43MHz
JOG
TRICK
fsc OUT
TR201
EF
IC201 CXA1208R
(CHROMA SIGNAL PROCESSOR)
1/2 ATT
TR202
EF
A·fsc (AUDIO)
EF
TR1
EF
TR2
PHASE CORRECT
TR3
PEAKING AMP
VR2
PB·Y
HPF AMP
TR8
IN
TR7
EF
VR1
Y·EMPHASIS
EF
TR4
TR5
TR6
TUNE (L, M, H)
IC1 CONTROL
*NCL1, 2: NOISE CANCELLER LEVEL CONTROL
*NCLP1, 2: NOISE CANCELLER PHASE CONTROL
*CFL1, 2: LINE NOISE CANCELLER LEVEL CONTROL
TUNE (L, M, H)
INPUT IS USED)
SWP
TUNE (L, M, H)
TO IC1 (MODE CONTROL)
VCK
WE (H OR L)
SP/LP
ENV DET
EDIT
TRICK
QUASI V·PULSE
SWP
TUNE
VS
VSD
VCK
WE
SP
EM, D
EDIT
TRICK
VP
CUE/REV
PULSE DELAY
ATF PLS
IC302
LA6324NM
SCHMIDT AMP
ATF ERROR
TRICK
STILL
NORMAL
SWP
JOG PLS
IC303 μPD78136GF
(SERVO/SYSCON MI-COM)
TR218
EF
fsc TRAP
TR219
EF
IC204
TC4W53F
LK
MAIN PCB

Y PB SIGNAL LINE
Y REC SIGNAL LINE
CHROMA PB SIGNAL LINE
CHROMA REC SIGNAL LINE

*PHOTOGRAPHS DURING PB MODE WERE TAKEN WHEN THE TEST TAPE TF-202CBS WAS BEING PLAYED BACK.

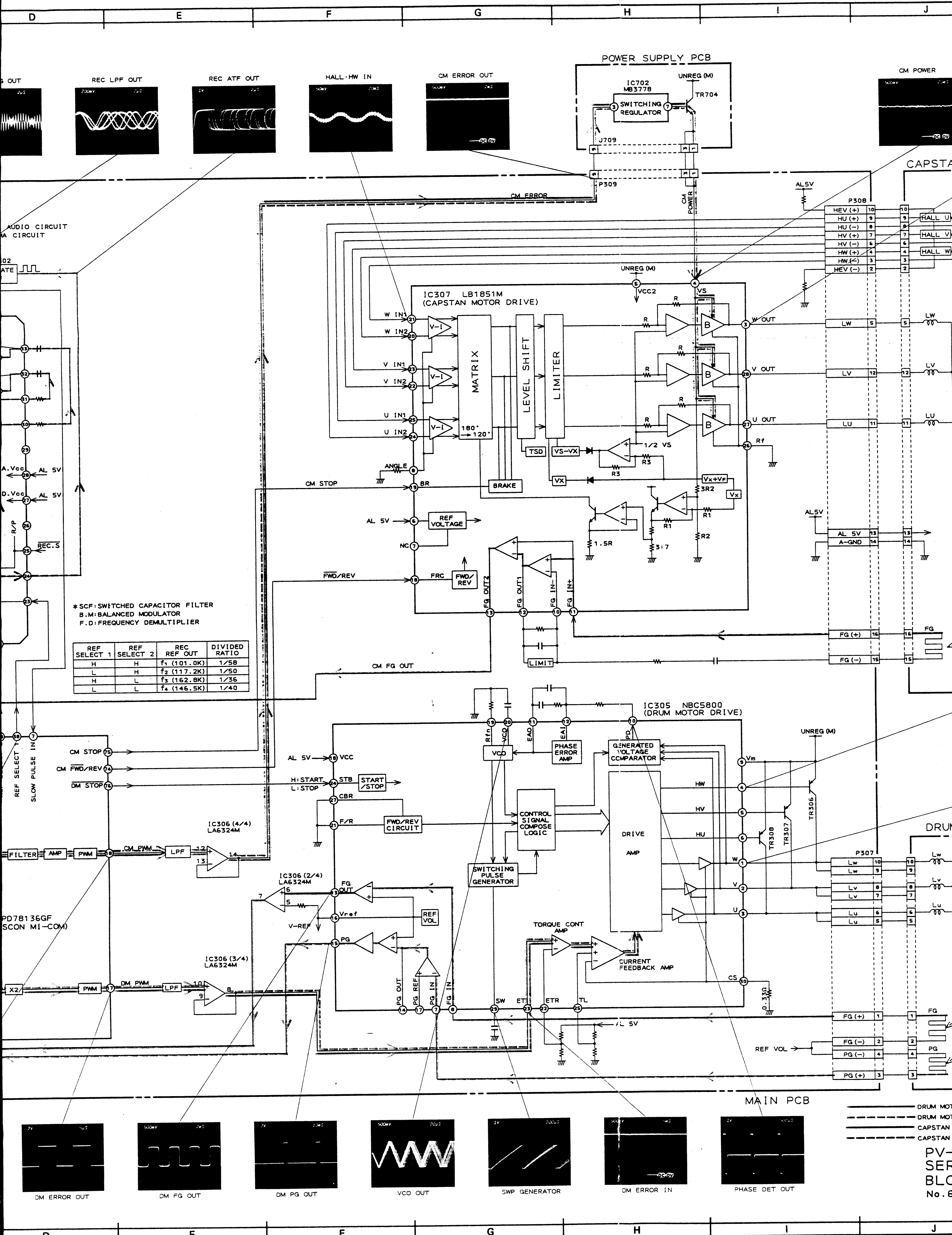
DURING REC MODE, COLOR BAR GENERATOR WAS CONNECTED TO P5 THROUGH THE Y/C SEPARATOR.

PV–M2/M4
VIDEO
BLOCK DIAGRAM
No.6-1 V301351M
A1


A
B
C
D
E
F
1
2
3
4
5
6
7
8
PRE AMP PCB
REC/PB CIRCUIT
P915
J15
PB PRE AMP OUT
PB ATF IN
REC SG OUT
REC LPF OUT
REC ATF OUT
TO PB HI-FI AUDIO CIRCUIT
TO PB CHROMA CIRCUIT
TR208~211
MIX
FROM REC HI-FI AUDIO CIRCUIT
FROM REC CHROMA CIRCUIT
EF
TR301
AL5V
LPF
TR302
2 STATE LPF
IC301 CXA1204Q
(ATF CONTROL)
fH IN
3 fH IN
S/H AMP OUT
ATF ERROR IN
ATF LOCK WINDOW
ATF PULSE IN
CAPSTAN FG IN
DRUM FG IN
A GND
PRE AMP
CCA
S/H B
S/H A
PEAK DETECTOR
VREF
VA SCF
B.M
16KHz BPF fH SCF
16KHz BPF 3fH SCF
6dB
1/4 F.D
1/25 F.D
1/M F.D
A.Vcc
D.Vcc
AL 5V
R/P
REC.S
A.GND
SUB
D.GND
X301
5.8594MHz
IC302 (1/4~2/4)
LA6324M
SCHMIDT AMP
ATF LOCK WINDOW
ATF ERROR
ATF PULSE
REF SELECT 2
REF SELECT 1
SLOW PULSE IN
CM STOP
CM FWD/REV
DM STOP
A/D
FILTER
AMP
P
R
1/2
P/V
1/n
F/V
CFG
CM PWM
PWM
LPF
IC306 (4/4)
LA6324M
IC306 (2/4)
LA6324M
IC306 (3/4)
LA6324M
V-REF
AL 5V
H:START
L:STOP
FWD
REF COUNTER
C SYNC
IC303 µPD78136GF
(SERVO/SYSCON MI-COM)
DPG
DFG
SW.P
X2
DM PWM
UPPER:REF SELECT1
LOWER:REF SELECT2
CM ERROR OUT
DM ERROR OUT
DM FG OUT
DM PG OUT

*SCF: SWITCHED CAPACITOR FILTER
B.M: BALANCED MODULATOR
F.D: FREQUENCY DEMULTIPLIER

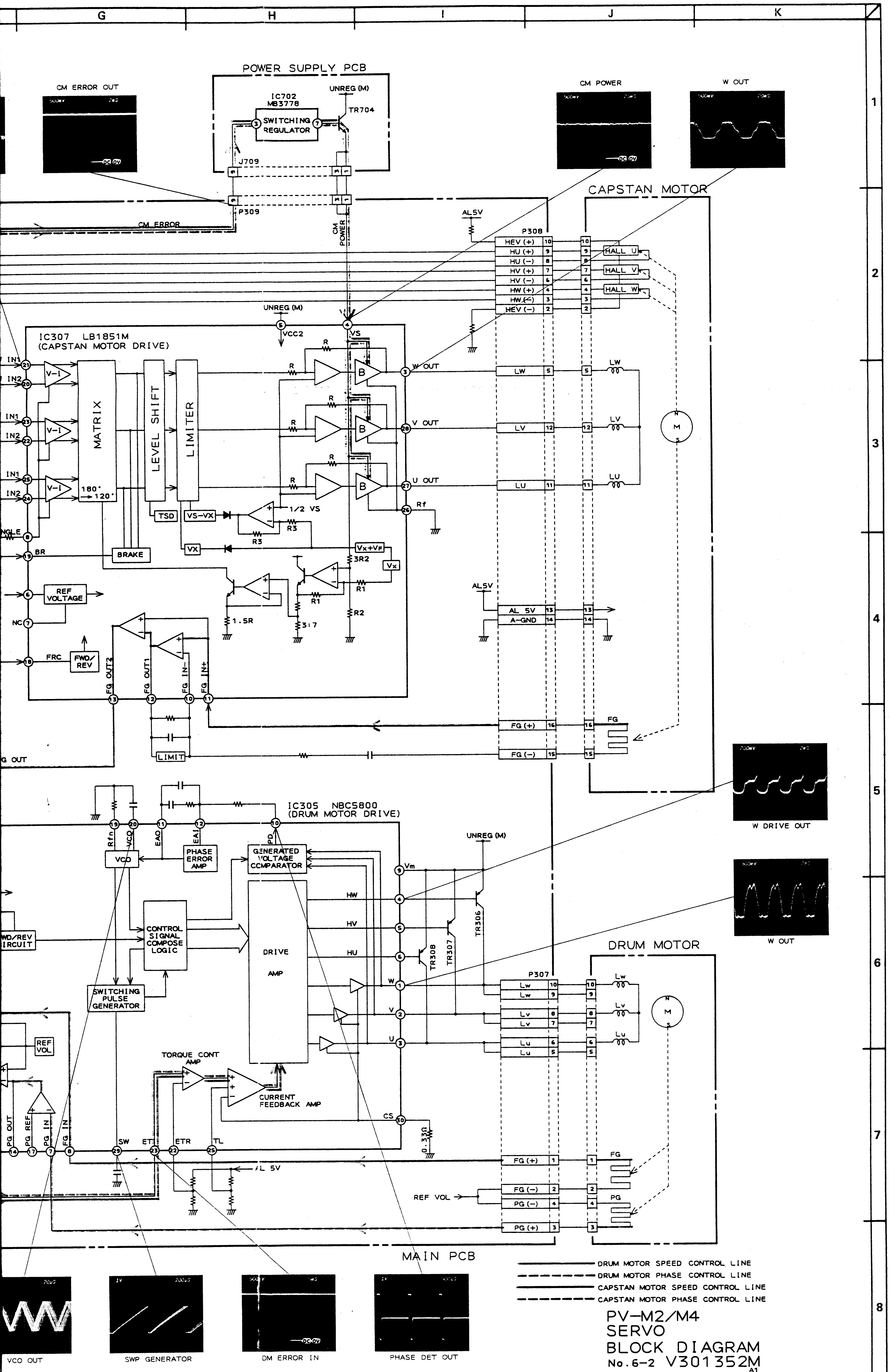
REF SELECT 1	REF SELECT 2	REC REF OUT	DIVIDED RATIO
H	H	f_1 (101.0K)	1/58
L	H	f_2 (117.2K)	1/50
H	L	f_3 (162.8K)	1/36
L	L	f_4 (146.5K)	1/40


D
E
F
G
H
I
J
G OUT
REC LPF OUT
REC ATF OUT
HALL·HW IN
CM ERROR OUT
CM POWER
POWER SUPPLY PCB
IC702
MB3778
SWITCHING REGULATOR
UNREG (M)
TR704
J709
P309
CM ERROR
CM POWER
CAPSTA
AL5V
P308
HEV (+)
HU (+)
HU (−)
HV (+)
HV (−)
HW (+)
HW (−)
HEV (−)
HALL U
HALL V
HALL W
AUDIO CIRCUIT
A CIRCUIT
IC307 LB1851M
(CAPSTAN MOTOR DRIVE)
UNREG (M)
VCC2
VS
W IN1
W IN2
V IN1
V IN2
U IN1
U IN2
V-I
MATRIX
LEVEL SHIFT
LIMITER
180°
→120°
W OUT
V OUT
U OUT
Rf
LW
LV
LU
TSD
VS−VX
1/2 VS
R3
VX
Vx+VF
3R2
Vx
R1
R2
ANGLE
CM STOP
BR
BRAKE
AL 5V
REF VOLTAGE
NC
1.5R
3:7
A.Vcc
D.Vcc
AL 5V
R/P
REC.S
FWD/REV
FRC
FG OUT2
FG OUT1
FG IN−
FG IN+
AL 5V
A-GND
FG (+)
FG (−)
FG
LIMIT
CM FG OUT
IC305 NBC5800
(DRUM MOTOR DRIVE)
Rfn
VCO
EAO
EAI
PD
PHASE ERROR AMP
GENERATED VOLTAGE COMPARATOR
UNREG (M)
Vm
AL 5V
VCC
H:START
L:STOP
STB
START /STOP
CBR
F/R
FWD/REV CIRCUIT
CONTROL SIGNAL COMPOSE LOGIC
DRIVE AMP
HW
HV
HU
TR306
TR307
TR308
DRUM
P307
Lw
Lv
Lu
CM STOP
CM FWD/REV
DM STOP
REF SELECT
SLOW PULSE IN
IC306 (4/4)
LA6324M
CM PWM
LPF
FILTER
AMP
PWM
PD78136GF
SCON MI-COM)
IC306 (2/4)
LA6324M
FG OUT
Vref
REF VOL
V-REF
PG
SWITCHING PULSE GENERATOR
TORQUE CONT AMP
CURRENT FEEDBACK AMP
CS
0.33Ω
IC306 (3/4)
LA6324M
X2
PWM
DM PWM
LPF
PG OUT
PG REF
PG IN
FG IN
SW
ET
ETR
TL
AL 5V
REF VOL
FG (+)
FG (−)
PG (−)
PG (+)
PG
MAIN PCB
DRUM MOT
DRUM MOT
CAPSTAN
CAPSTAN
DM ERROR OUT
DM FG OUT
DM PG OUT
VCO OUT
SWP GENERATOR
DM ERROR IN
PHASE DET OUT

*SCF: SWITCHED CAPACITOR FILTER
B.M: BALANCED MODULATOR
F.D: FREQUENCY DEMULTIPLIER

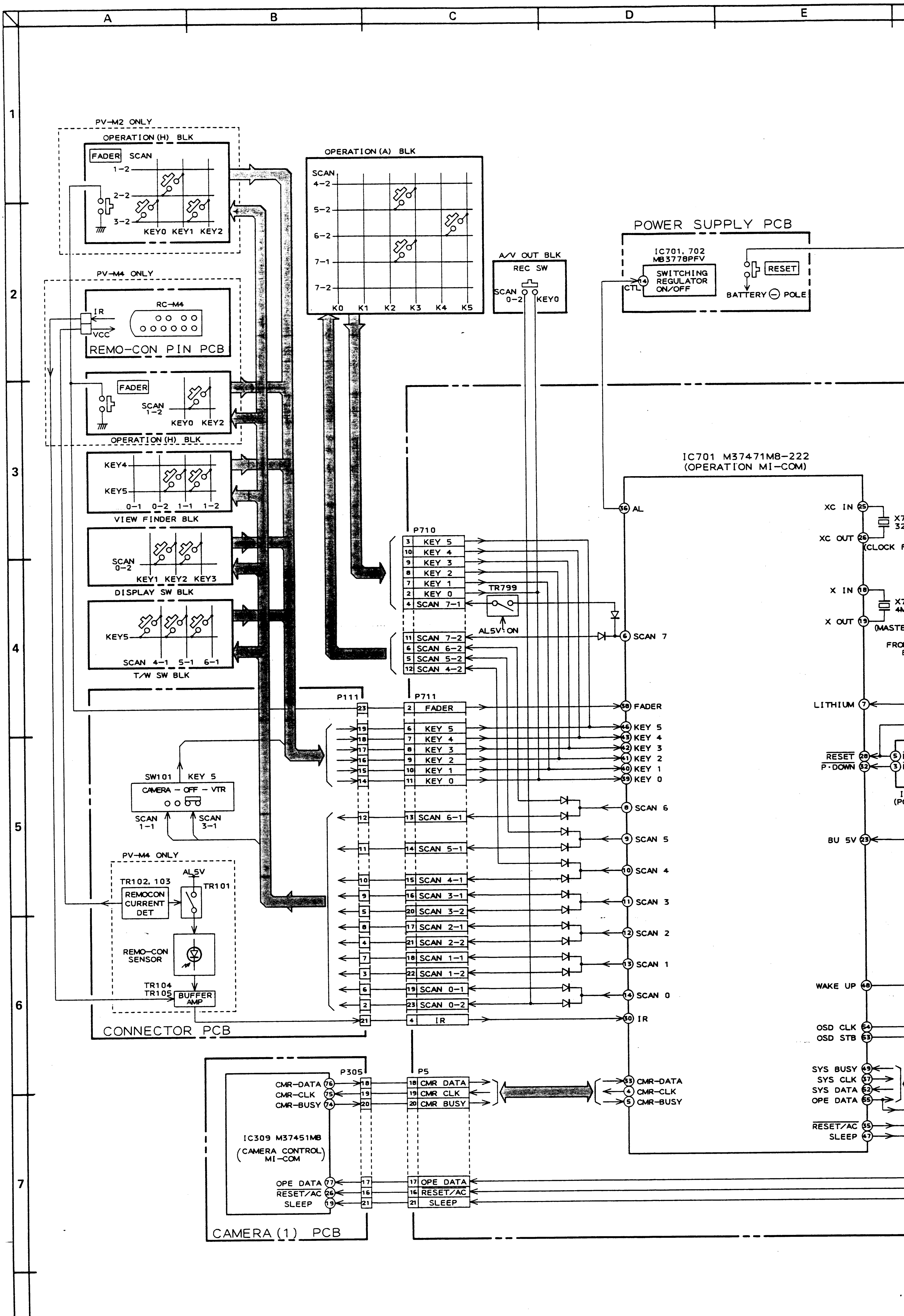
REF SELECT 1	REF SELECT 2	REC REF OUT	DIVIDED RATIO
H	H	f₁ (101.0K)	1/58
L	H	f₂ (117.2K)	1/50
H	L	f₃ (162.8K)	1/36
L	L	f₄ (146.5K)	1/40

PV-
SER
BLO
No.6

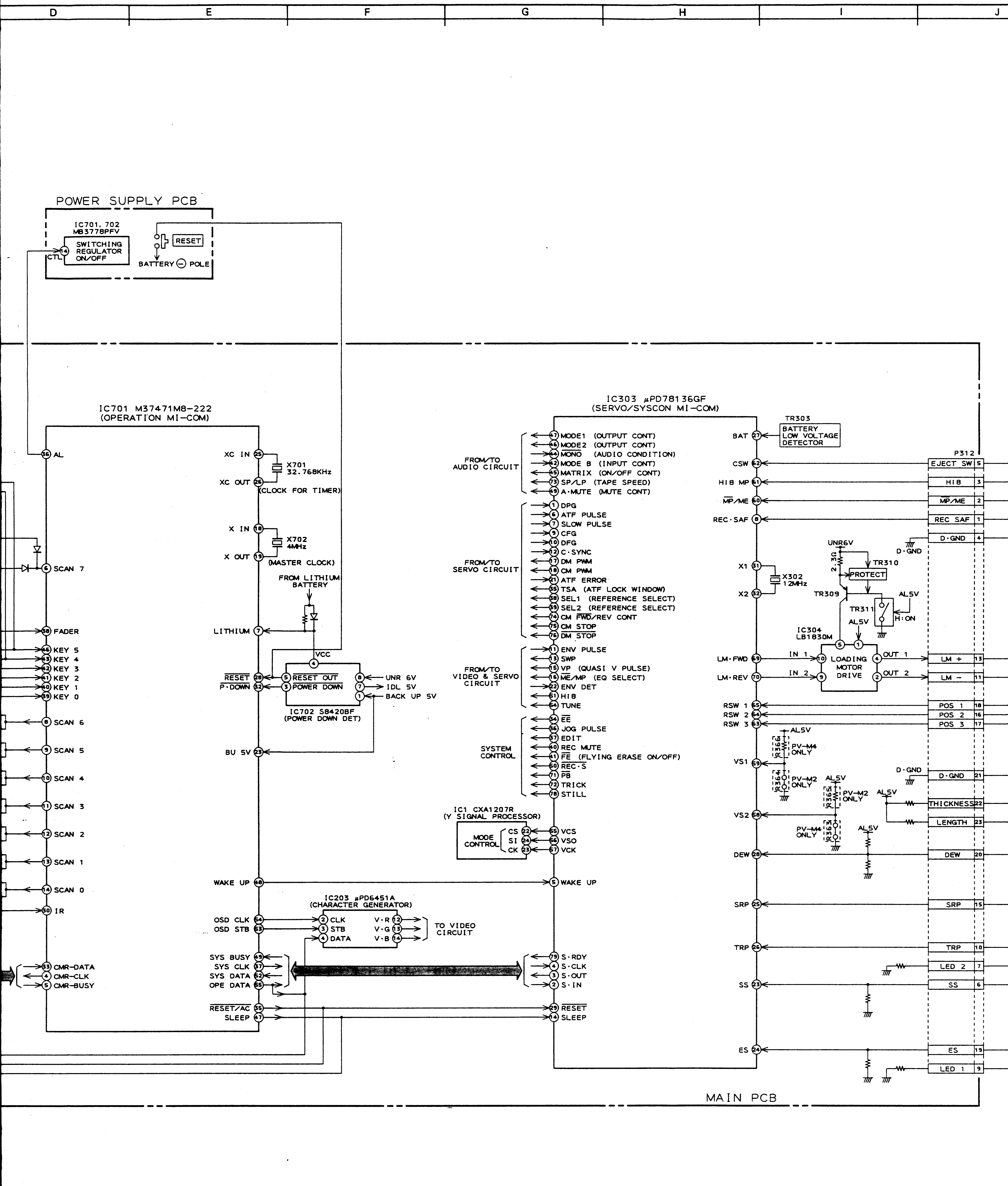


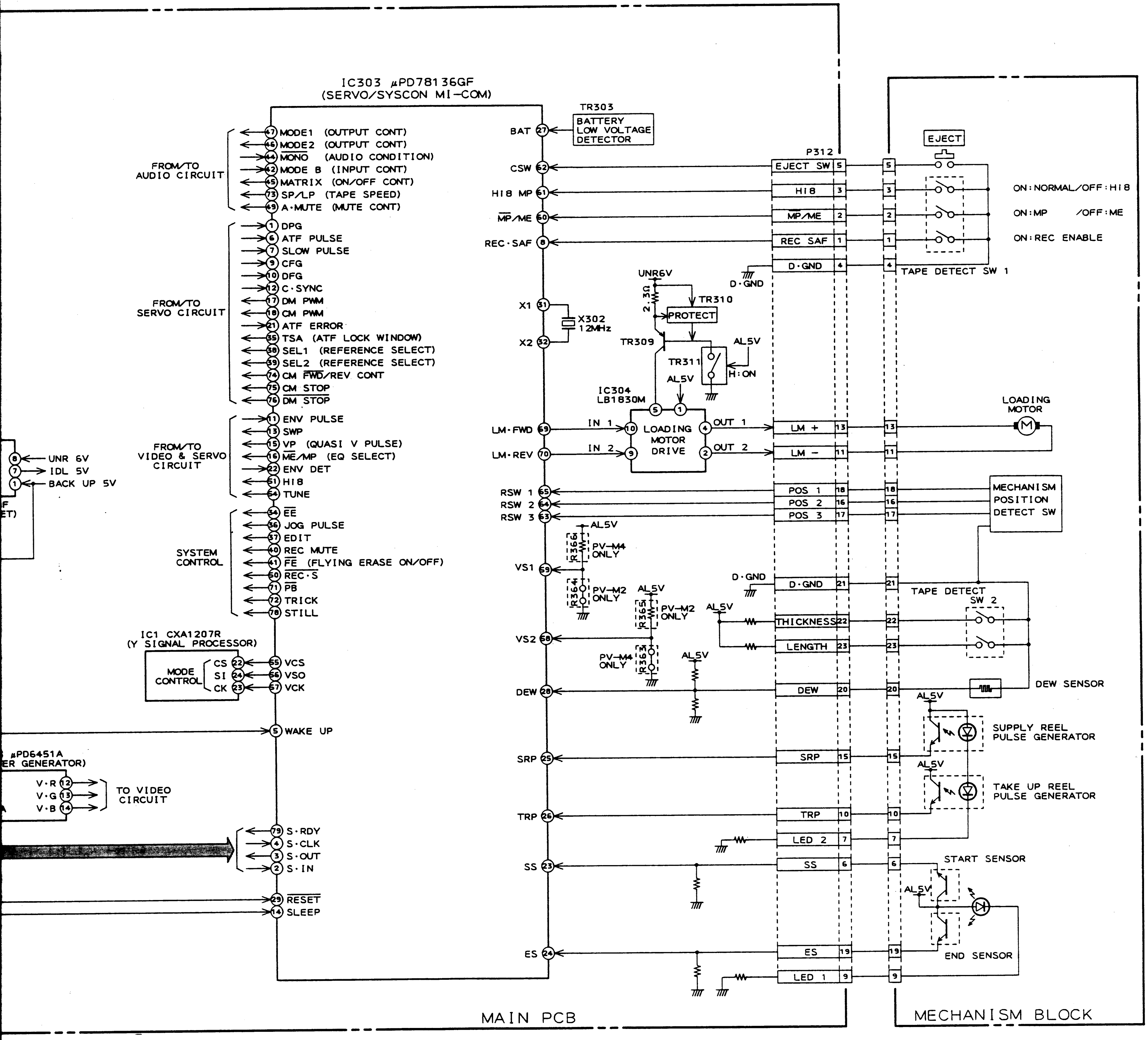
G
H
I
J
K
1
2
3
4
5
6
7
8
POWER SUPPLY PCB
IC702
MB3778
SWITCHING REGULATOR
UNREG (M)
TR704
J709
P309
CM ERROR OUT
CM ERROR
CM POWER
W OUT
CAPSTAN MOTOR
AL5V
P308
HEV (+)
HU (+)
HU (−)
HV (+)
HV (−)
HW (+)
HW (−)
HEV (−)
HALL U
HALL V
HALL W
IC307 LB1851M
(CAPSTAN MOTOR DRIVE)
VCC2
VS
V-I
MATRIX
LEVEL SHIFT
LIMITER
180°
120°
W OUT
V OUT
U OUT
Rf
1/2 VS
TSD
VS−VX
R3
VX
Vx+Vf
Vx
BRAKE
BR
REF VOLTAGE
NC
FRC
FWD/REV
1.5R
3:7
R1
R2
3R2
FG OUT2
FG OUT1
FG IN−
FG IN+
LIMIT
FG (+)
FG (−)
LW
LV
LU
AL 5V
A−GND
FG
M
W DRIVE OUT
IC305 NBC5800
(DRUM MOTOR DRIVE)
Rfn
VCO
EAO
EAI
PD
PHASE ERROR AMP
GENERATED VOLTAGE COMPARATOR
Vm
HW
HV
HU
CONTROL SIGNAL COMPOSE LOGIC
DRIVE AMP
SWITCHING PULSE GENERATOR
UNREG (M)
TR306
TR307
TR308
W
V
U
DRUM MOTOR
P307
Lw
Lv
Lu
REF VOL
TORQUE CONT AMP
CURRENT FEEDBACK AMP
CS
0.33Ω
PG OUT
PG REF
PG IN
FG IN
SW
ET
ETR
TL
AL 5V
REF VOL
FG (+)
FG (−)
PG (−)
PG (+)
PG
FWD/REV CIRCUIT
MAIN PCB
VCO OUT
SWP GENERATOR
DM ERROR IN
PHASE DET OUT
DRUM MOTOR SPEED CONTROL LINE
DRUM MOTOR PHASE CONTROL LINE
CAPSTAN MOTOR SPEED CONTROL LINE
CAPSTAN MOTOR PHASE CONTROL LINE

PV-M2/M4
SERVO
BLOCK DIAGRAM
No.6-2 V301352M A1

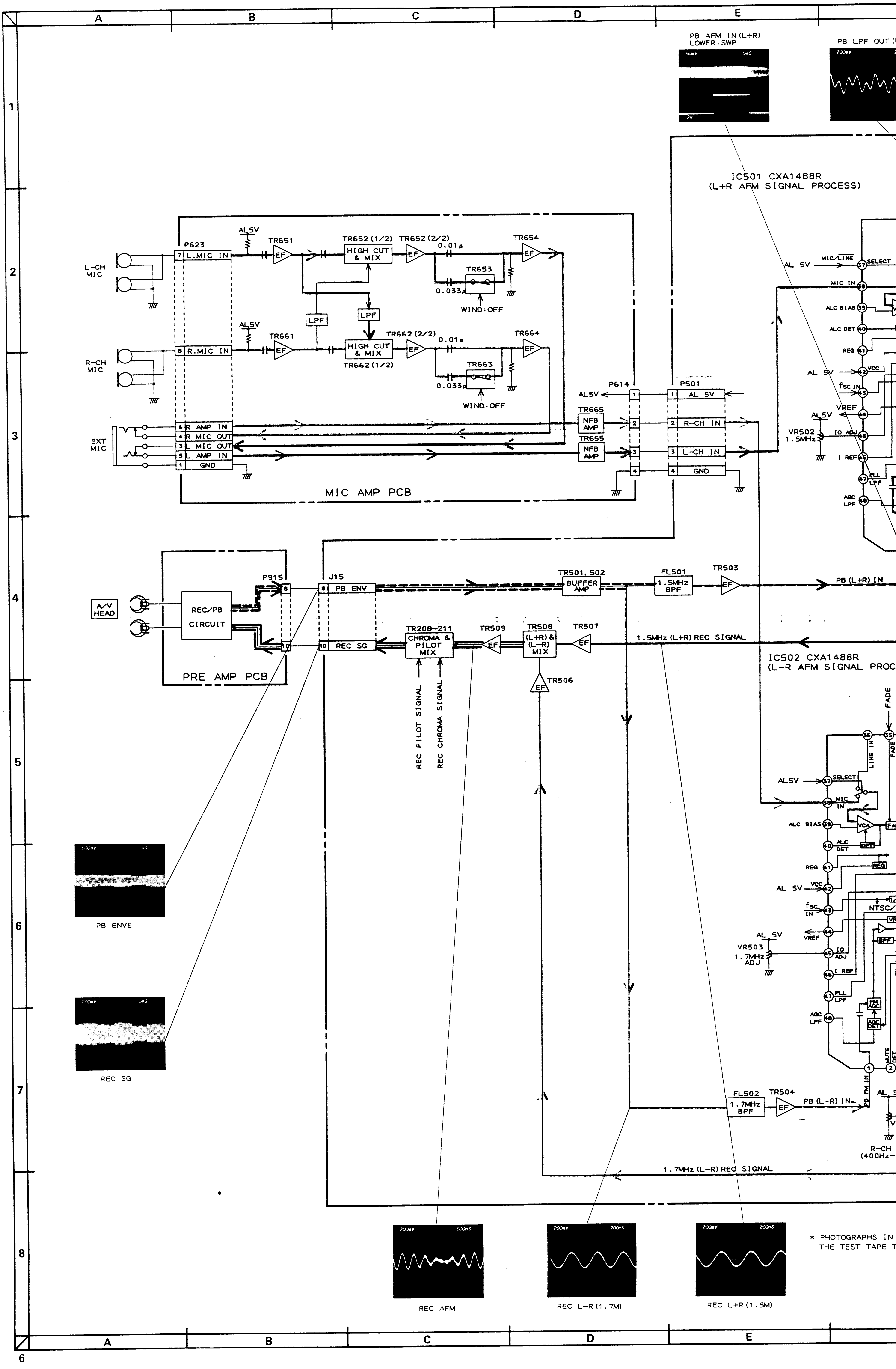


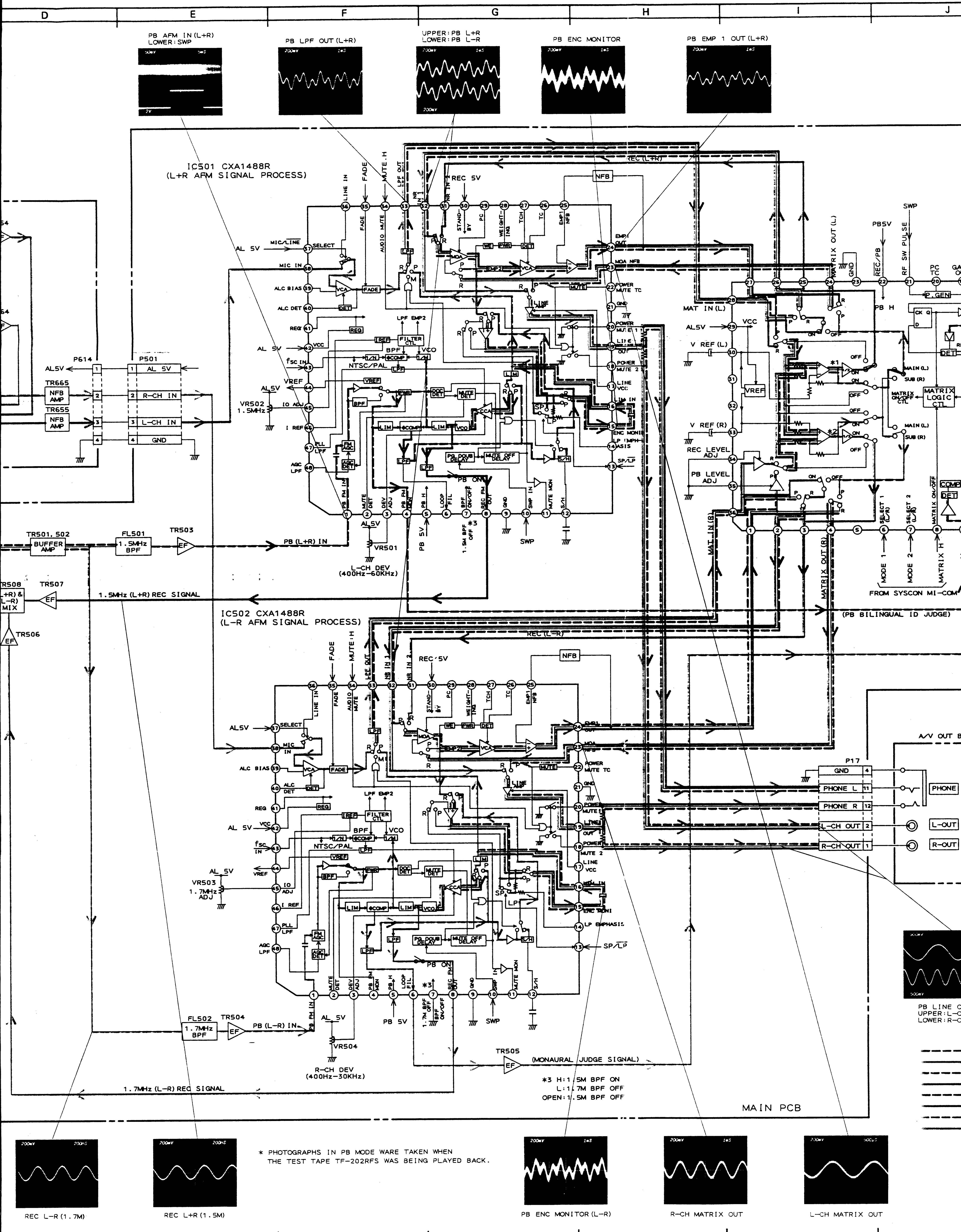
A
B
C
D
E
1
2
3
4
5
6
7
8
PV-M2 ONLY
OPERATION (H) BLK
FADER
SCAN
1-2
2-2
3-2
KEY0 KEY1 KEY2
OPERATION (A) BLK
SCAN
4-2
5-2
6-2
7-1
7-2
K0 K1 K2 K3 K4 K5
A/V OUT BLK
REC SW
SCAN 0-2
KEY0
POWER SUPPLY PCB
IC701, 702 MB3778PFV
SWITCHING REGULATOR ON/OFF
CTL
14
RESET
BATTERY ⊖ POLE
PV-M4 ONLY
RC-M4
IR
VCC
REMO-CON PIN PCB
FADER
SCAN 1-2
KEY0 KEY2
OPERATION (H) BLK
KEY4
KEY5
0-1 0-2 1-1 1-2
VIEW FINDER BLK
SCAN 0-2
KEY1 KEY2 KEY3
DISPLAY SW BLK
KEY5
SCAN 4-1 5-1 6-1
T/W SW BLK
IC701 M37471M8-222
(OPERATION MI-COM)
P710
3 KEY 5
10 KEY 4
9 KEY 3
8 KEY 2
7 KEY 1
2 KEY 0
4 SCAN 7-1
TR799
AL5V: ON
11 SCAN 7-2
6 SCAN 6-2
5 SCAN 5-2
12 SCAN 4-2
P111
P711
23
2 FADER
19 18 17 16 15 14
6 KEY 5
7 KEY 4
8 KEY 3
9 KEY 2
10 KEY 1
11 KEY 0
SW101 KEY 5
CAMERA - OFF - VTR
SCAN 1-1
SCAN 3-1
12 13 SCAN 6-1
11 14 SCAN 5-1
10 15 SCAN 4-1
9 16 SCAN 3-1
5 20 SCAN 3-2
8 17 SCAN 2-1
4 21 SCAN 2-2
7 18 SCAN 1-1
3 22 SCAN 1-2
6 19 SCAN 0-1
2 23 SCAN 0-2
21 4 IR
PV-M4 ONLY
AL5V
TR102, 103
TR101
REMOCON CURRENT DET
REMO-CON SENSOR
TR104 TR105
BUFFER AMP
CONNECTOR PCB
36 AL
6 SCAN 7
58 FADER
46 KEY 5
43 KEY 4
42 KEY 3
41 KEY 2
40 KEY 1
39 KEY 0
8 SCAN 6
9 SCAN 5
10 SCAN 4
11 SCAN 3
12 SCAN 2
13 SCAN 1
14 SCAN 0
30 IR
33 CMR-DATA
4 CMR-CLK
5 CMR-BUSY
XC IN 25
XC OUT 26
(CLOCK
X IN 18
X OUT 19
(MASTE
FRO
LITHIUM 7
RESET 28
P·DOWN 32
BU 5V 23
WAKE UP 48
OSD CLK 54
OSD STB 53
SYS BUSY 49
SYS CLK 37
SYS DATA 62
OPE DATA 65
RESET/AC 35
SLEEP 47
P305
P5
CMR-DATA 76
CMR-CLK 75
CMR-BUSY 74
18 19 20
18 CMR DATA
19 CMR CLK
20 CMR BUSY
IC309 M37451MB
(CAMERA CONTROL MI-COM)
OPE DATA 77
RESET/AC 26
SLEEP 19
17 16 21
17 OPE DATA
16 RESET/AC
21 SLEEP
CAMERA (1) PCB


D
E
F
G
H
I
J
POWER SUPPLY PCB
IC701, 702
MB3778PFV
SWITCHING REGULATOR ON/OFF
CTL
RESET
BATTERY ⊖ POLE
IC701 M37471M8-222
(OPERATION MI-COM)
AL
SCAN 7
FADER
KEY 5
KEY 4
KEY 3
KEY 2
KEY 1
KEY 0
SCAN 6
SCAN 5
SCAN 4
SCAN 3
SCAN 2
SCAN 1
SCAN 0
IR
CMR-DATA
CMR-CLK
CMR-BUSY
XC IN
XC OUT
X701
32.768KHz
(CLOCK FOR TIMER)
X IN
X OUT
X702
4MHz
(MASTER CLOCK)
FROM LITHIUM BATTERY
LITHIUM
VCC
RESET
P·DOWN
RESET OUT
POWER DOWN
UNR 6V
IDL 5V
BACK UP 5V
IC702 S8420BF
(POWER DOWN DET)
BU 5V
WAKE UP
OSD CLK
OSD STB
IC203 µPD6451A
(CHARACTER GENERATOR)
CLK
STB
DATA
V·R
V·G
V·B
TO VIDEO CIRCUIT
SYS BUSY
SYS CLK
SYS DATA
OPE DATA
RESET/AC
SLEEP
IC303 µPD78136GF
(SERVO/SYSCON MI-COM)
FROM/TO AUDIO CIRCUIT
MODE1 (OUTPUT CONT)
MODE2 (OUTPUT CONT)
MONO (AUDIO CONDITION)
MODE B (INPUT CONT)
MATRIX (ON/OFF CONT)
SP/LP (TAPE SPEED)
A·MUTE (MUTE CONT)
FROM/TO SERVO CIRCUIT
DPG
ATF PULSE
SLOW PULSE
CFG
DFG
C·SYNC
DM PWM
CM PWM
ATF ERROR
TSA (ATF LOCK WINDOW)
SEL1 (REFERENCE SELECT)
SEL2 (REFERENCE SELECT)
CM FWD/REV CONT
CM STOP
DM STOP
FROM/TO VIDEO & SERVO CIRCUIT
ENV PULSE
SWP
VP (QUASI V PULSE)
ME/MP (EQ SELECT)
ENV DET
HI8
TUNE
SYSTEM CONTROL
EE
JOG PULSE
EDIT
REC MUTE
FE (FLYING ERASE ON/OFF)
REC·S
PB
TRICK
STILL
IC1 CXA1207R
(Y SIGNAL PROCESSOR)
MODE CONTROL
CS
SI
CK
VCS
VSO
VCK
WAKE UP
S·RDY
S·CLK
S·OUT
S·IN
RESET
SLEEP
BAT
TR303
BATTERY LOW VOLTAGE DETECTOR
CSW
HI8 MP
MP/ME
REC·SAF
X1
X2
X302
12MHz
UNR6V
2.3Ω
TR310
PROTECT
TR309
TR311
AL5V
H:ON
D·GND
IC304
LB1830M
LOADING MOTOR DRIVE
IN 1
IN 2
OUT 1
OUT 2
LM·FWD
LM·REV
RSW 1
RSW 2
RSW 3
VS1
VS2
R366
R364
R365
R363
PV-M4 ONLY
PV-M2 ONLY
DEW
SRP
TRP
SS
ES
P312
EJECT SW
HI8
MP/ME
REC SAF
D·GND
LM +
LM −
POS 1
POS 2
POS 3
THICKNESS
LENGTH
DEW
SRP
TRP
LED 2
SS
ES
LED 1
MAIN PCB

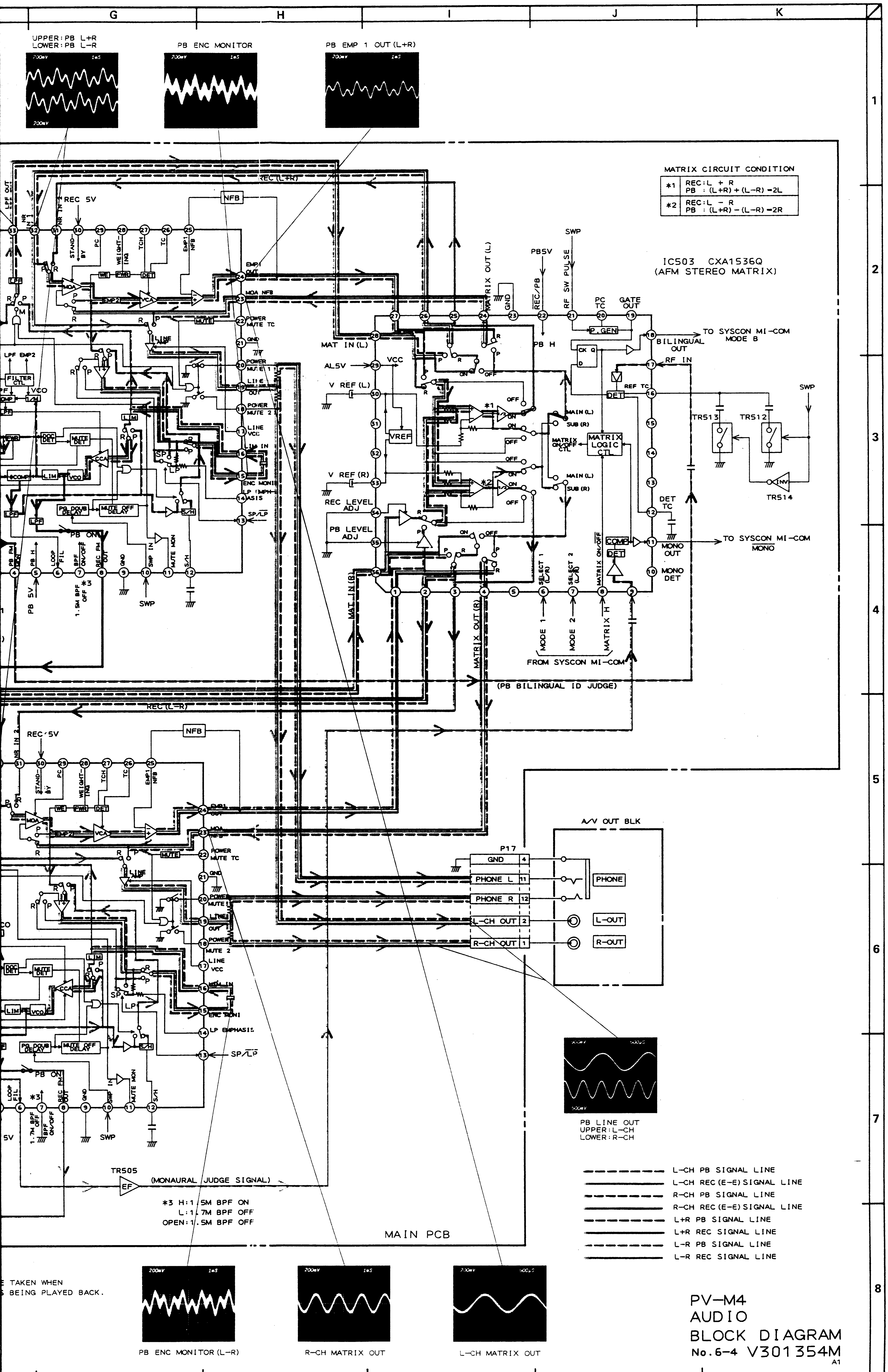

IC303 μPD78136GF
(SERVO/SYSCON MI-COM)
FROM/TO AUDIO CIRCUIT
47 MODE1 (OUTPUT CONT)
46 MODE2 (OUTPUT CONT)
44 MONO (AUDIO CONDITION)
42 MODE B (INPUT CONT)
45 MATRIX (ON/OFF CONT)
73 SP/LP (TAPE SPEED)
49 A·MUTE (MUTE CONT)
FROM/TO SERVO CIRCUIT
1 DPG
6 ATF PULSE
7 SLOW PULSE
9 CFG
10 DFG
12 C·SYNC
17 DM PWM
18 CM PWM
21 ATF ERROR
35 TSA (ATF LOCK WINDOW)
38 SEL1 (REFERENCE SELECT)
39 SEL2 (REFERENCE SELECT)
74 CM FWD/REV CONT
75 CM STOP
76 DM STOP
FROM/TO VIDEO & SERVO CIRCUIT
11 ENV PULSE
13 SWP
15 VP (QUASI V PULSE)
16 ME/MP (EQ SELECT)
22 ENV DET
51 HI8
64 TUNE
SYSTEM CONTROL
34 EE
36 JOG PULSE
37 EDIT
40 REC MUTE
41 FE (FLYING ERASE ON/OFF)
50 REC·S
71 PB
72 TRICK
78 STILL
IC1 CXA1207R
(Y SIGNAL PROCESSOR)
MODE CONTROL
CS 22
SI 24
CK 23
55 VCS
56 VSO
57 VCK
5 WAKE UP
8 UNR 6V
7 IDL 5V
1 BACK UP 5V
F
ET)
μPD6451A
ER GENERATOR)
V·R 12
V·G 13
V·B 14
TO VIDEO CIRCUIT
79 S·RDY
4 S·CLK
3 S·OUT
2 S·IN
29 RESET
14 SLEEP
BAT 27
TR303
BATTERY LOW VOLTAGE DETECTOR
CSW 62
HI8 MP 61
MP/ME 60
REC·SAF 8
X1 31
X2 32
X302 12MHz
UNR6V
2.3Ω
TR310
PROTECT
TR309
D·GND
AL5V
TR311
H:ON
IC304 LB1830M
LM·FWD 69
LM·REV 70
IN 1
IN 2
10
9
5
1
4
2
LOADING MOTOR DRIVE
OUT 1
OUT 2
RSW 1 65
RSW 2 64
RSW 3 63
VS1 59
VS2 58
R366
PV-M4 ONLY
R364
PV-M2 ONLY
R365
PV-M2 ONLY
R363
PV-M4 ONLY
DEW 28
SRP 25
TRP 26
SS 23
ES 24
P312
EJECT SW 5
HI8 3
MP/ME 2
REC SAF 1
D·GND 4
LM + 13
LM − 11
POS 1 18
POS 2 16
POS 3 17
D·GND 21
THICKNESS 22
LENGTH 23
DEW 20
SRP 15
TRP 10
LED 2 7
SS 6
ES 19
LED 1 9
EJECT
ON:NORMAL/OFF:HI8
ON:MP /OFF:ME
ON:REC ENABLE
TAPE DETECT SW 1
LOADING MOTOR
M
MECHANISM POSITION DETECT SW
TAPE DETECT SW 2
DEW SENSOR
SUPPLY REEL PULSE GENERATOR
TAKE UP REEL PULSE GENERATOR
START SENSOR
END SENSOR
MAIN PCB
MECHANISM BLOCK

PV-M2/M4
SYSTEM CONTROL
BLOCK DIAGRAM
No.6-3 V301353M
A1

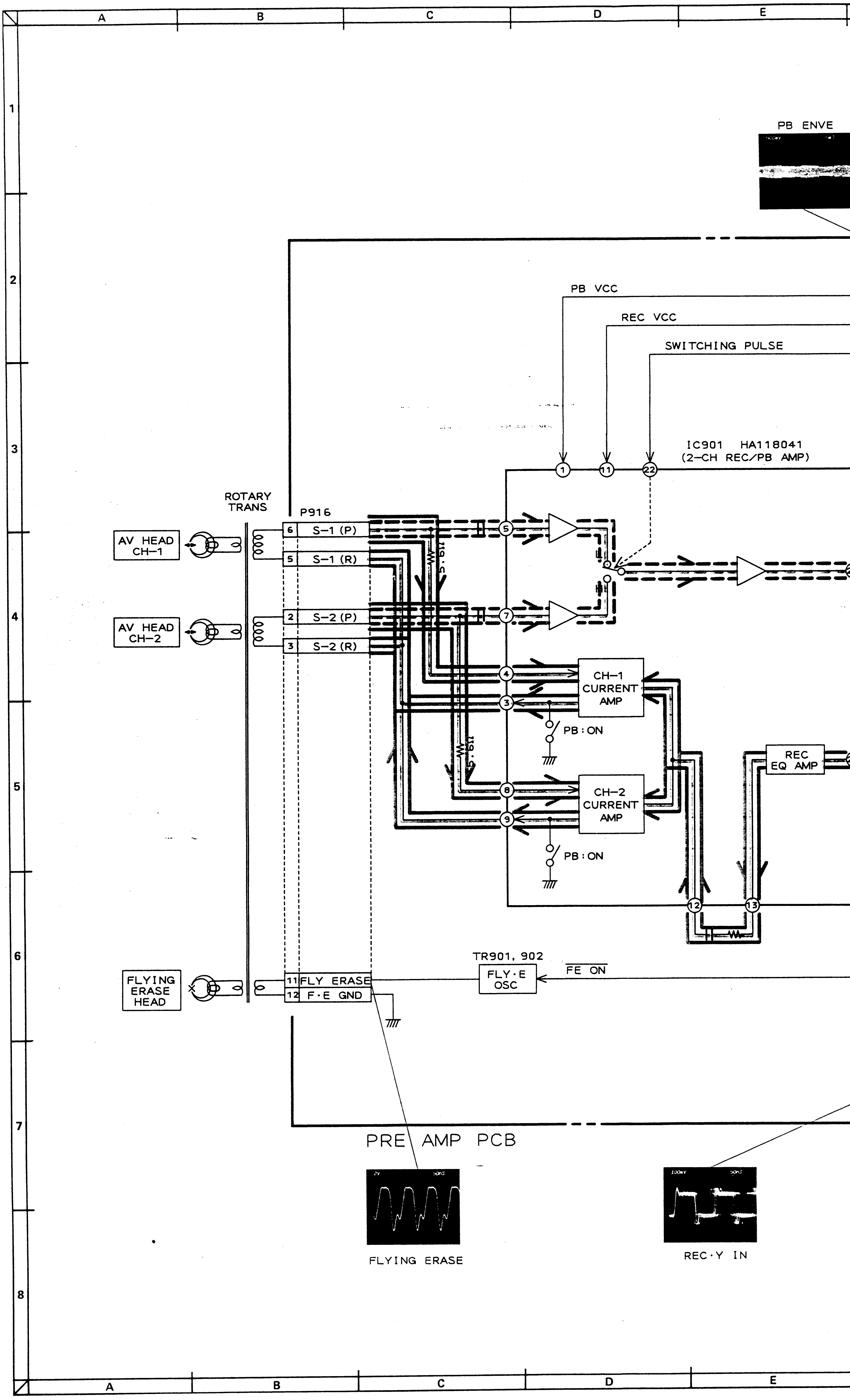
A
B
C
D
E
1
2
3
4
5
6
7
8
PB AFM IN (L+R)
LOWER : SWP
PB LPF OUT (
IC501 CXA1488R
(L+R AFM SIGNAL PROCESS)
L-CH MIC
R-CH MIC
EXT MIC
P623
7 L.MIC IN
8 R.MIC IN
6 R AMP IN
4 R MIC OUT
3 L MIC OUT
5 L AMP IN
1 GND
AL5V
TR651
EF
TR652 (1/2)
HIGH CUT & MIX
TR652 (2/2)
EF
0.01μ
TR654
EF
TR653
0.033μ
WIND : OFF
LPF
LPF
TR661
EF
TR662 (2/2)
HIGH CUT & MIX
TR662 (1/2)
EF
0.01μ
TR664
EF
TR663
0.033μ
WIND : OFF
TR665
NFB AMP
TR655
NFB AMP
MIC AMP PCB
P614
AL5V
P501
1 AL 5V
2 R-CH IN
3 L-CH IN
4 GND
AL 5V
MIC/LINE
SELECT
MIC IN
ALC BIAS
ALC DET
REG
VCC
fsc IN
VREF
AL5V
VR502
1.5MHz
IO ADJ
I REF
PLL LPF
AGC LPF
37
38
39
40
41
42
43
44
45
46
47
48
A/V HEAD
REC/PB CIRCUIT
PRE AMP PCB
P915
8
10
J15
8 PB ENV
10 REC SG
TR501, 502
BUFFER AMP
FL501
1.5MHz BPF
TR503
EF
PB (L+R) IN
TR208~211
CHROMA & PILOT MIX
TR509
EF
TR508
(L+R) & (L-R) MIX
TR507
EF
1.5MHz (L+R) REC SIGNAL
TR506
EF
REC PILOT SIGNAL
REC CHROMA SIGNAL
IC502 CXA1488R
(L-R AFM SIGNAL PROC
FADE
36
35
LINE IN
FADE
AL5V
SELECT
MIC IN
ALC BIAS
VCA
ALC DET
REG
AL 5V
VCC
fsc IN
NTSC/
VREF
AL 5V
VR503
1.7MHz ADJ
IO ADJ
I REF
PLL LPF
AGC LPF
FM AGC
AGC DET
BPF
MUTE DET
1
2
PB FM IN
FL502
1.7MHz BPF
TR504
EF
PB (L-R) IN
R-CH
(400Hz-
1.7MHz (L-R) REC SIGNAL
PB ENVE
REC SG
REC AFM
REC L-R (1.7M)
REC L+R (1.5M)
* PHOTOGRAPHS IN
THE TEST TAPE T

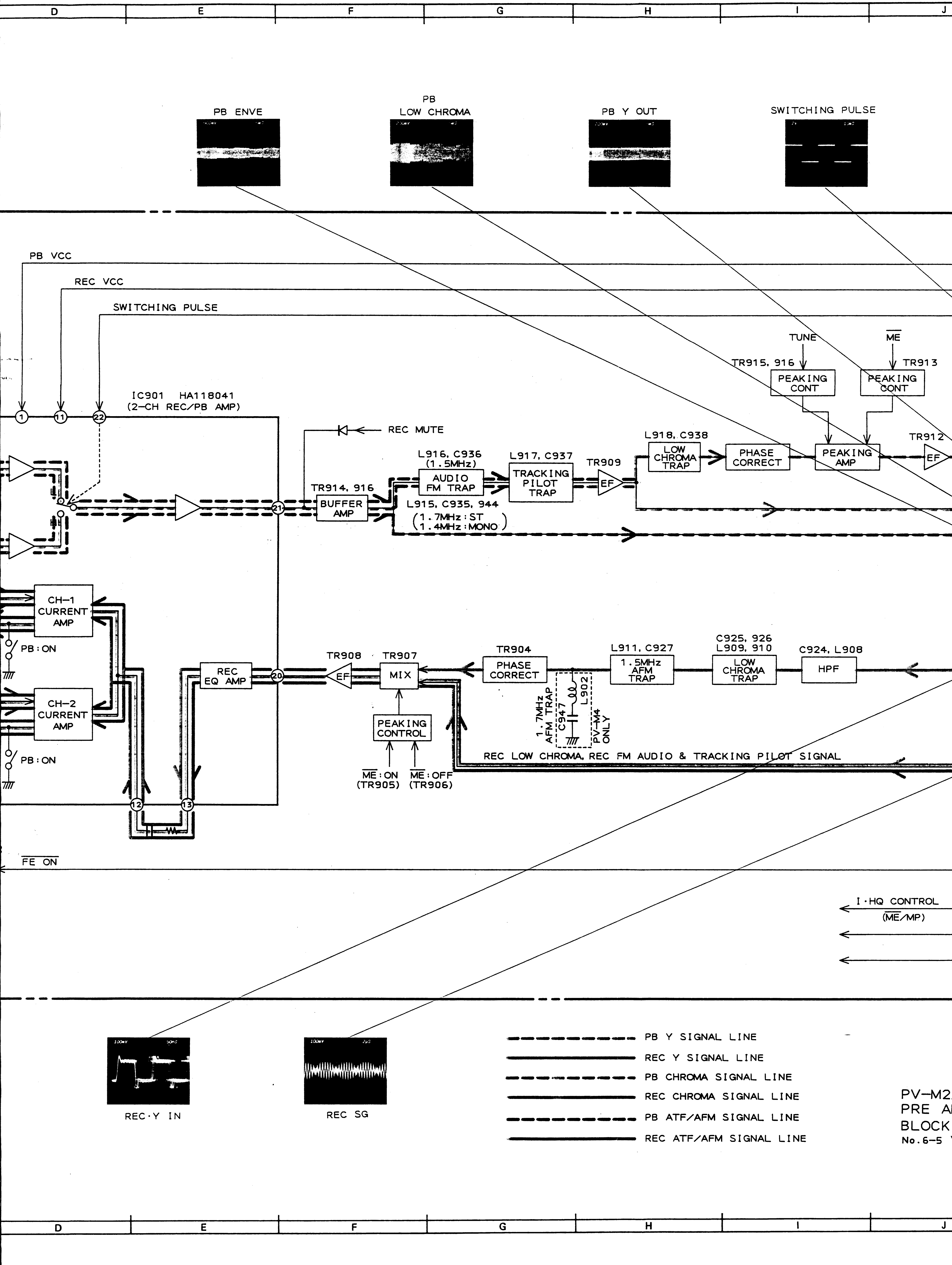

D
E
F
G
H
I
J
PB AFM IN (L+R)
LOWER: SWP
PB LPF OUT (L+R)
UPPER: PB L+R
LOWER: PB L-R
PB ENC MONITOR
PB EMP 1 OUT (L+R)
IC501 CXA1488R
(L+R AFM SIGNAL PROCESS)
IC502 CXA1488R
(L-R AFM SIGNAL PROCESS)
REC (L+R)
REC (L-R)
NFB
REC 5V
AL 5V
AL5V
MIC/LINE
SELECT
MIC IN
ALC BIAS
ALC DET
REG
VCC
fsc IN
VREF
IO ADJ
I REF
PLL LPF
AGC LPF
VCA
FADE
DET
LPF EMP2
FILTER CTL
BPF
VCO
NTSC/PAL
LPF
DOC DET
MUTE DET
LIM
COMP
CCA
PB DOUB DELAY
MUTE OFF DELAY
PB ON
S/H
SP/LP
LINE IN
MUTE H
LPF OUT
NR IN 1
NR IN 2
STAND-BY
PC
WEIGHT-ING
TCH
TC
EMP1 NFB
EMP1 OUT
MOA NFB
POWER MUTE TC
GND
POWER MUTE 1
LINE VCC
LINE OUT
POWER MUTE 2
LINE IN
ENC MONI
LP EMPHASIS
PB FM IN
MUTE DET
DEV ADJ
PB FM MON
PB H
LOOP FIL
BPF ON/OFF
REC FM OUT
SWP IN
MUTE MON
PB 5V
1.5M BPF OFF *3
1.7M BPF OFF
SWP
VR501
L-CH DEV
(400Hz-60KHz)
VR502
1.5MHz
VR503
1.7MHz ADJ
VR504
R-CH DEV
(400Hz-30KHz)
P614
P501
AL 5V
R-CH IN
L-CH IN
GND
TR665
TR655
NFB AMP
TR501, 502
BUFFER AMP
FL501
1.5MHz BPF
TR503
EF
PB (L+R) IN
TR508
(L+R) & (L-R) MIX
TR507
TR506
1.5MHz (L+R) REC SIGNAL
FL502
1.7MHz BPF
TR504
PB (L-R) IN
TR505
(MONAURAL JUDGE SIGNAL)
1.7MHz (L-R) REC SIGNAL
*3 H: 1.5M BPF ON
L: 1.7M BPF OFF
OPEN: 1.5M BPF OFF
MAIN PCB
MAT IN (L)
MAT IN (R)
VCC
V REF (L)
V REF (R)
VREF
REC LEVEL ADJ
PB LEVEL ADJ
MATRIX OUT (L)
MATRIX OUT (R)
REC/PB
RF SW PULSE
PC TC
PB5V
P.GEN
PB H
CK Q
D
MATRIX ON/OFF CTL
MATRIX LOGIC CTL
MAIN (L)
SUB (R)
ON
OFF
*1
*2
COMP
SELECT 1 (L/R)
SELECT 2 (L/R)
MATRIX ON/OFF
MODE 1
MODE 2
MATRIX H
FROM SYSCON MI-COM
(PB BILINGUAL ID JUDGE)
A/V OUT
P17
GND
PHONE L
PHONE R
L-CH OUT
R-CH OUT
PHONE
L-OUT
R-OUT
PB LINE
UPPER: L-
LOWER: R-
REC L-R (1.7M)
REC L+R (1.5M)
PB ENC MONITOR (L-R)
R-CH MATRIX OUT
L-CH MATRIX OUT

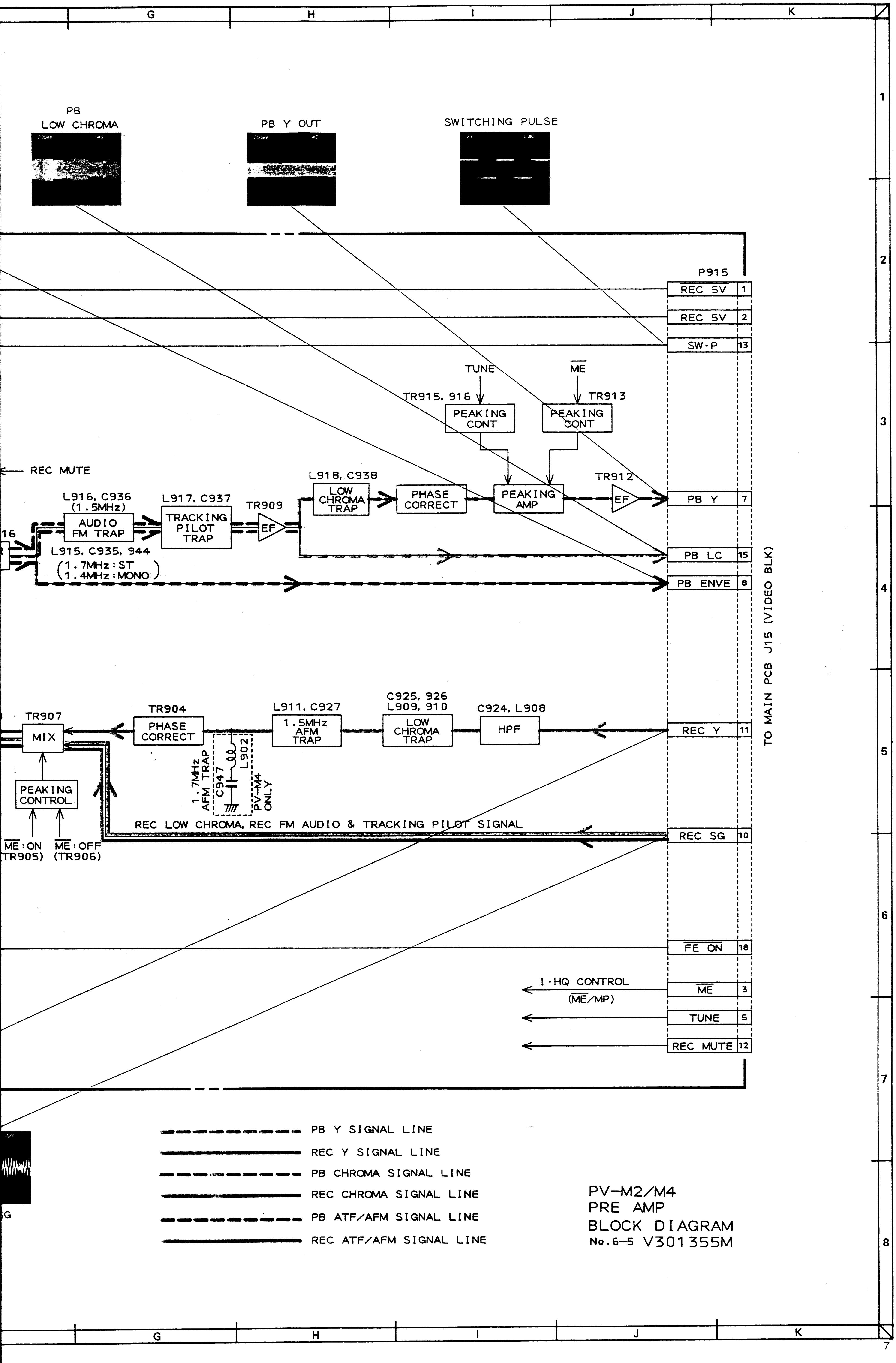
* PHOTOGRAPHS IN PB MODE WARE TAKEN WHEN THE TEST TAPE TF-202RFS WAS BEING PLAYED BACK.


G
H
I
J
K
1
2
3
4
5
6
7
8
UPPER:PB L+R
LOWER:PB L−R
PB ENC MONITOR
PB EMP 1 OUT (L+R)
MATRIX CIRCUIT CONDITION
*1 REC:L + R PB : (L+R)+(L−R)=2L
*2 REC:L − R PB : (L+R)−(L−R)=2R
IC503 CXA1536Q
(AFM STEREO MATRIX)
REC (L+R)
REC (L−R)
REC 5V
NFB
STAND-BY
PC
WEIGHT-ING
TCH
TC
EMP1 NFB
EMP1 OUT
MOA NFB
POWER MUTE TC
GND
POWER MUTE 1
LINE OUT
POWER MUTE 2
LINE VCC
NR IN
ENC MONI
LP EMPHASIS
SP/LP
PB ON
LOOP FIL
BPF ON/OFF
REC FM OUT
SWP IN
MUTE MON
S/H
PB 5V
1.5M BPF OFF
*3
SWP
MOA
VCA
WE
FWR
DET
EMP2
MUTE
LINE AMP
FILTER CTL
LPF
LPF EMP2
VCO
DOC DET
MUTE DET
CCA
LIM
PB DOUB DELAY
MUTE OFF DELAY
SP
LP
MATRIX OUT (L)
PB5V
REC/PB
RF SW PULSE
PC TC
GATE OUT
P.GEN
TO SYSCON MI-COM MODE B
BILINGUAL OUT
RF IN
MAT IN (L)
AL5V
VCC
V REF (L)
V REF (R)
VREF
REC LEVEL ADJ
PB LEVEL ADJ
PB H
REF TC
MAIN (L)
SUB (R)
MATRIX ON/OFF CTL
MATRIX LOGIC CTL
ON
OFF
DET TC
COMP
MONO OUT
MONO DET
TO SYSCON MI-COM MONO
TR513
TR512
TR514
INV
MAT IN (R)
MATRIX OUT (R)
SELECT 1 (L/R)
SELECT 2 (L/R)
MATRIX ON/OFF
MODE 1
MODE 2
MATRIX H
FROM SYSCON MI-COM
(PB BILINGUAL ID JUDGE)
REC/5V
1.7M BPF OFF
A/V OUT BLK
P17
GND
PHONE L
PHONE R
L-CH OUT
R-CH OUT
PHONE
L-OUT
R-OUT
PB LINE OUT
UPPER:L−CH
LOWER:R−CH
TR505
EF
(MONAURAL JUDGE SIGNAL)
*3 H:1.5M BPF ON
L:1.7M BPF OFF
OPEN:1.5M BPF OFF
MAIN PCB
L-CH PB SIGNAL LINE
L-CH REC (E-E) SIGNAL LINE
R-CH PB SIGNAL LINE
R-CH REC (E-E) SIGNAL LINE
L+R PB SIGNAL LINE
L+R REC SIGNAL LINE
L−R PB SIGNAL LINE
L−R REC SIGNAL LINE
E TAKEN WHEN
S BEING PLAYED BACK.
PB ENC MONITOR (L−R)
R−CH MATRIX OUT
L−CH MATRIX OUT

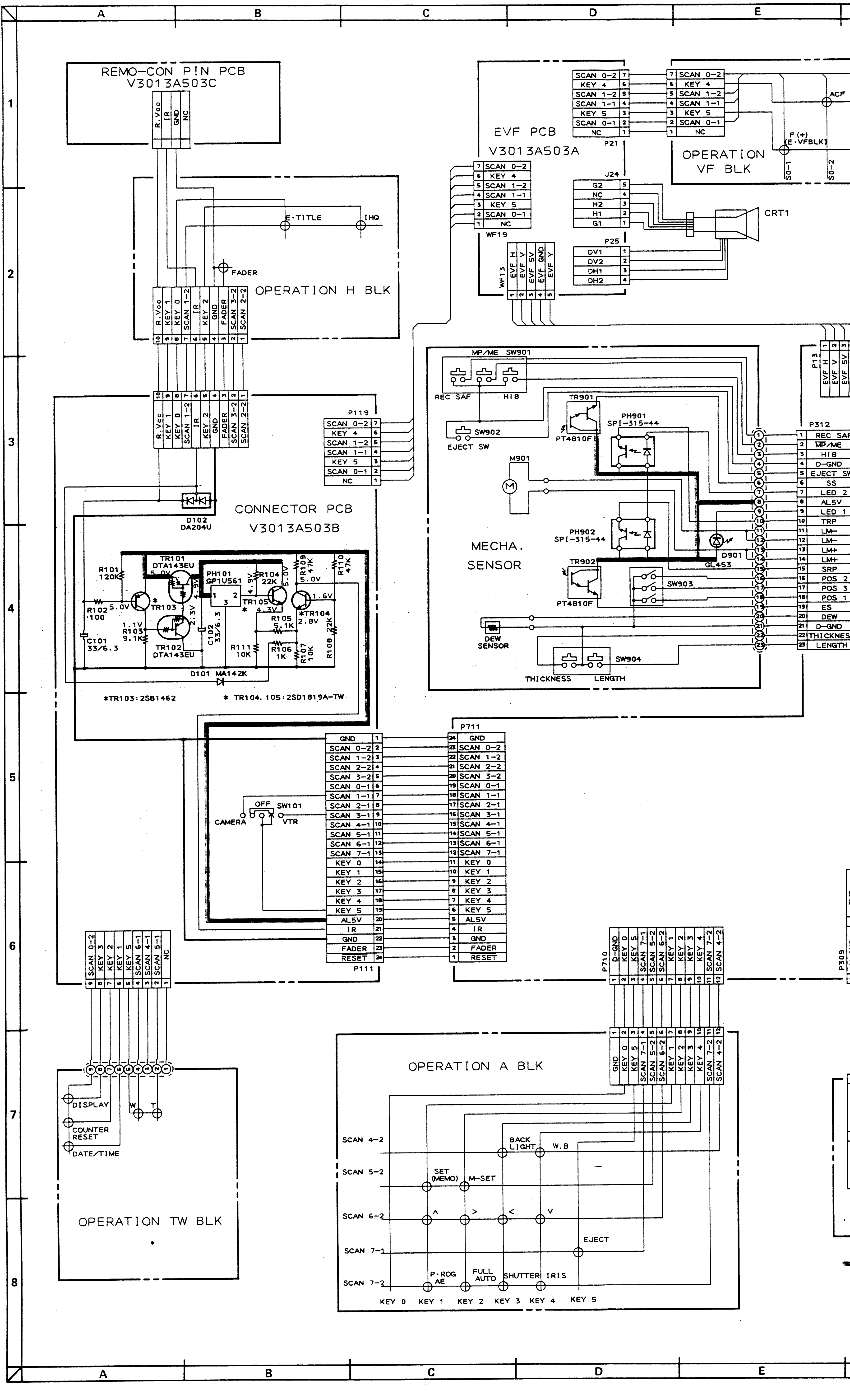
PV−M4
AUDIO
BLOCK DIAGRAM
No.6-4 V301354M
A1

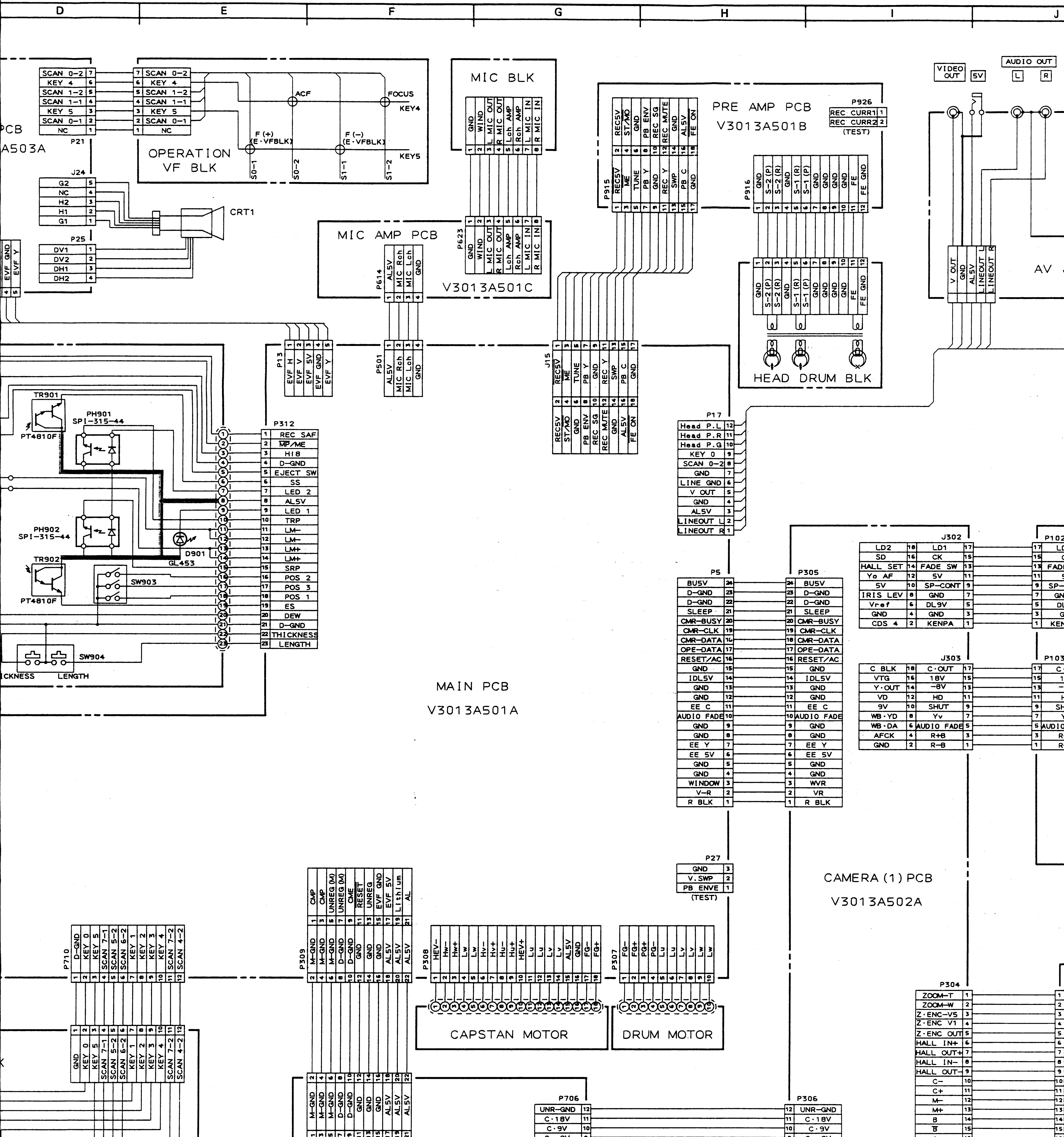
A
B
C
D
E
1
2
3
4
5
6
7
8
PB ENVE
PB VCC
REC VCC
SWITCHING PULSE
IC901 HA118041
(2-CH REC/PB AMP)
1
11
22
ROTARY TRANS
P916
AV HEAD CH-1
AV HEAD CH-2
6 S-1 (P)
5 S-1 (R)
2 S-2 (P)
3 S-2 (R)
5
7
4
3
8
9
5.6Ω
CH-1 CURRENT AMP
CH-2 CURRENT AMP
PB : ON
PB : ON
REC EQ AMP
12
13
FLYING ERASE HEAD
11 FLY ERASE
12 F·E GND
TR901, 902
FLY·E OSC
FE ON
PRE AMP PCB
FLYING ERASE
REC·Y IN


D
E
F
G
H
I
J
PB ENVE
PB
LOW CHROMA
PB Y OUT
SWITCHING PULSE
PB VCC
REC VCC
SWITCHING PULSE
TUNE
ME
TR915, 916
TR913
PEAKING
CONT
PEAKING
CONT
IC901 HA118041
(2-CH REC/PB AMP)
1
11
22
REC MUTE
L918, C938
TR912
LOW
CHROMA
TRAP
PHASE
CORRECT
PEAKING
AMP
EF
L916, C936
(1.5MHz)
L917, C937
TR909
AUDIO
FM TRAP
TRACKING
PILOT
TRAP
EF
TR914, 916
BUFFER
AMP
21
L915, C935, 944
(1.7MHz:ST
1.4MHz:MONO)
CH–1
CURRENT
AMP
PB:ON
CH–2
CURRENT
AMP
PB:ON
REC
EQ AMP
20
TR908
TR907
EF
MIX
TR904
PHASE
CORRECT
L911, C927
1.5MHz
AFM
TRAP
C925, 926
L909, 910
LOW
CHROMA
TRAP
C924, L908
HPF
1.7MHz
AFM TRAP
C947
L902
PV–M4
ONLY
PEAKING
CONTROL
ME:ON
(TR905)
ME:OFF
(TR906)
REC LOW CHROMA, REC FM AUDIO & TRACKING PILOT SIGNAL
12
13
FE ON
I·HQ CONTROL
(ME/MP)
REC·Y IN
REC SG
PB Y SIGNAL LINE
REC Y SIGNAL LINE
PB CHROMA SIGNAL LINE
REC CHROMA SIGNAL LINE
PB ATF/AFM SIGNAL LINE
REC ATF/AFM SIGNAL LINE
PV–M2
PRE A
BLOCK
No.6–5


G
H
I
J
K
1
2
3
4
5
6
7
8
PB
LOW CHROMA
PB Y OUT
SWITCHING PULSE
P915
REC 5V 1
REC 5V 2
SW·P 13
TUNE
ME
TR915, 916
PEAKING CONT
TR913
PEAKING CONT
REC MUTE
L918, C938
LOW CHROMA TRAP
PHASE CORRECT
PEAKING AMP
TR912
EF
PB Y 7
L916, C936
(1.5MHz)
AUDIO FM TRAP
L917, C937
TRACKING PILOT TRAP
TR909
EF
16
L915, C935, 944
(1.7MHz : ST
1.4MHz : MONO)
PB LC 15
PB ENVE 8
TO MAIN PCB J15 (VIDEO BLK)
TR907
MIX
TR904
PHASE CORRECT
L911, C927
1.5MHz AFM TRAP
C925, 926
L909, 910
LOW CHROMA TRAP
C924, L908
HPF
REC Y 11
1.7MHz AFM TRAP
C947
L902
PV-M4 ONLY
PEAKING CONTROL
ME : ON
(TR905)
ME : OFF
(TR906)
REC LOW CHROMA, REC FM AUDIO & TRACKING PILOT SIGNAL
REC SG 10
FE ON 18
I·HQ CONTROL
(ME/MP)
ME 3
TUNE 5
REC MUTE 12
SG
PB Y SIGNAL LINE
REC Y SIGNAL LINE
PB CHROMA SIGNAL LINE
REC CHROMA SIGNAL LINE
PB ATF/AFM SIGNAL LINE
REC ATF/AFM SIGNAL LINE

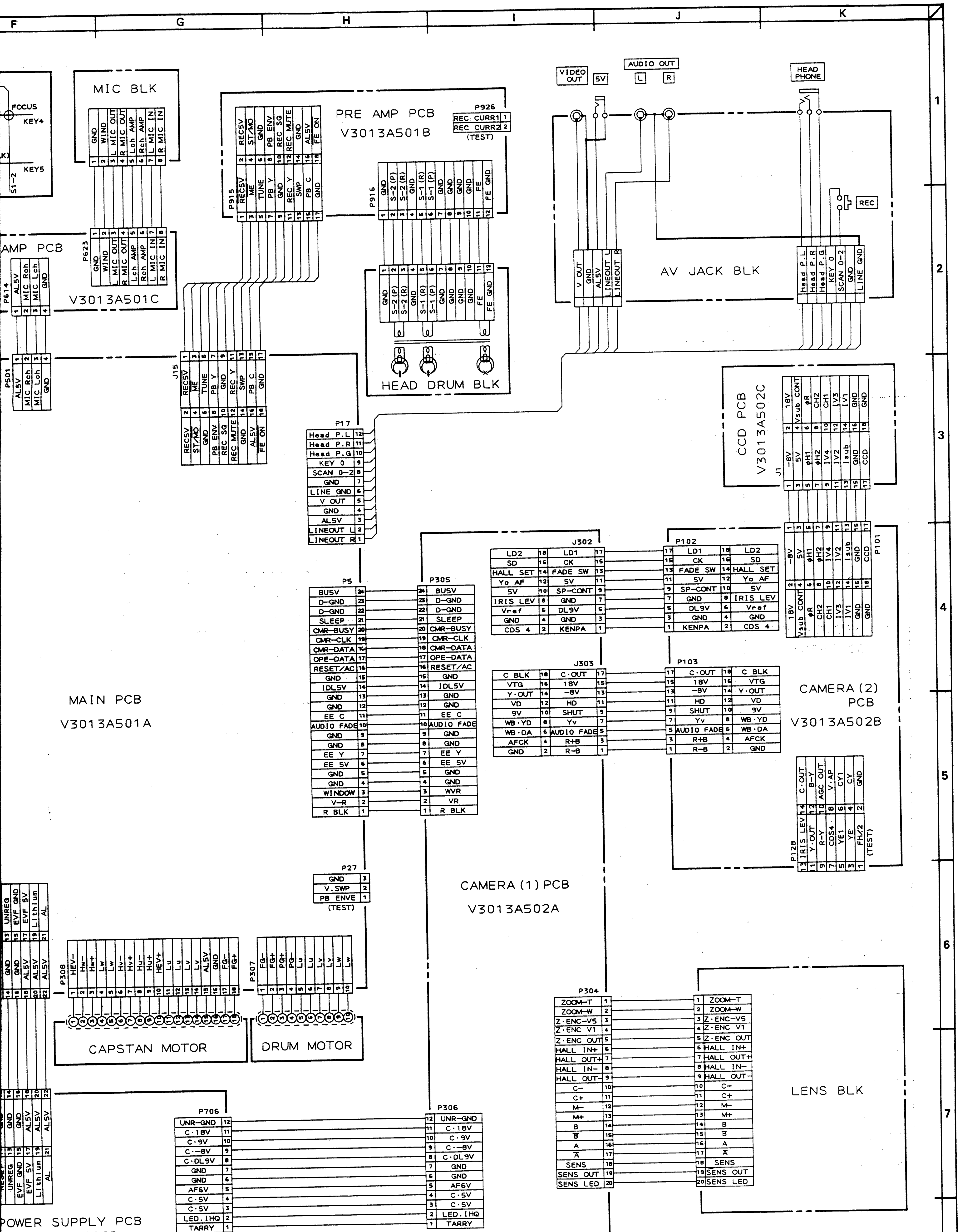
PV–M2/M4
PRE AMP
BLOCK DIAGRAM
No.6–5 V301355M


REMO-CON PIN PCB
V3013A503C
R.Vcc
IR
GND
NC
E·TITLE
IHQ
FADER
OPERATION H BLK
R.Vcc
KEY 1
KEY 0
SCAN 1-2
IR
KEY 2
GND
FADER
SCAN 3-2
SCAN 2-2
P119
SCAN 0-2
KEY 4
SCAN 1-2
SCAN 1-1
KEY 5
SCAN 0-1
NC
D102
DA204U
CONNECTOR PCB
V3013A503B
TR101
DTA143EU
R101
120K
R102
100
TR103
R103
9.1K
C101
33/6.3
TR102
DTA143EU
PH101
GP1U561
C102
33/6.3
R104
22K
TR105
R105
5.1K
R106
1K
R111
10K
R107
10K
R108
22K
R109
47K
R110
47K
TR104
D101 MA142K
*TR103:2SB1462
* TR104. 105:2SD1819A-TW
CAMERA
OFF
SW101
VTR
P111
P711
GND
SCAN 0-2
SCAN 1-2
SCAN 2-2
SCAN 3-2
SCAN 0-1
SCAN 1-1
SCAN 2-1
SCAN 3-1
SCAN 4-1
SCAN 5-1
SCAN 6-1
SCAN 7-1
KEY 0
KEY 1
KEY 2
KEY 3
KEY 4
KEY 5
AL5V
IR
GND
FADER
RESET
EVF PCB
V3013A503A
P21
J24
P25
WF19
WF13
G2
NC
H2
H1
G1
DV1
DV2
DH1
DH2
EVF H
EVF V
EVF 5V
EVF GND
EVF Y
CRT1
OPERATION
VF BLK
ACF
F(+)
(E·VFBLK)
S0-1
S0-2
MP/ME SW901
REC SAF
H18
TR901
PH901
SPI-315-44
SW902
EJECT SW
PT4810F
M901
MECHA.
SENSOR
PH902
SPI-315-44
TR902
PT4810F
D901
GL453
SW903
DEW
SENSOR
SW904
THICKNESS
LENGTH
P13
P312
REC SAF
MP/ME
H18
D-GND
EJECT SW
SS
LED 2
AL5V
LED 1
TRP
LM-
LM-
LM+
LM+
SRP
POS 2
POS 3
POS 1
ES
DEW
D-GND
THICKNES
LENGTH
P710
D-GND
KEY 0
KEY 5
SCAN 5-2
SCAN 6-2
KEY 1
KEY 2
KEY 3
KEY 4
SCAN 7-2
SCAN 4-2
P309
SCAN 0-2
KEY 3
KEY 2
KEY 1
KEY 5
SCAN 6-1
SCAN 4-1
SCAN 5-1
NC
DISPLAY
COUNTER
RESET
DATE/TIME
W
T
OPERATION TW BLK
OPERATION A BLK
GND
KEY 0
KEY 5
SCAN 7-1
SCAN 5-2
SCAN 6-2
KEY 1
KEY 2
KEY 3
KEY 4
SCAN 7-2
SCAN 4-2
SCAN 4-2
SCAN 5-2
SCAN 6-2
SCAN 7-1
SCAN 7-2
BACK
LIGHT
W.B
SET
(MEMO)
M-SET
EJECT
P·ROG
AE
FULL
AUTO
SHUTTER
IRIS
KEY 0
KEY 1
KEY 2
KEY 3
KEY 4
KEY 5
A
B
C
D
E
1
2
3
4
5
6
7
8


D
E
F
G
H
I
J
SCAN 0-2
KEY 4
SCAN 1-2
SCAN 1-1
KEY 5
SCAN 0-1
NC
P21
PCB
A503A
OPERATION
VF BLK
ACF
FOCUS
KEY4
KEY5
F (+)
(E·VFBLK)
F (−)
(E·VFBLK)
S0-1
S0-2
S1-1
S1-2
J24
G2
NC
H2
H1
G1
CRT1
P25
DV1
DV2
DH1
DH2
EVF GND
EVF Y
MIC BLK
GND
WIND
L MIC OUT
R MIC OUT
Lch AMP
Rch AMP
L MIC IN
R MIC IN
MIC AMP PCB
V3013A501C
P623
P614
AL5V
MIC Rch
MIC Lch
GND
PRE AMP PCB
V3013A501B
P926
REC CURR1
REC CURR2
(TEST)
P915
REC5V
ST/MO
GND
PB ENV
REC SG
REC MUTE
GND
AL5V
FE ON
ME
TUNE
PB Y
REC Y
SWP
PB C
P916
S-2 (P)
S-2 (R)
S-1 (R)
S-1 (P)
FE
FE GND
HEAD DRUM BLK
VIDEO OUT
5V
AUDIO OUT
L
R
AV J
V OUT
LINEOUT L
LINEOUT R
P13
EVF H
EVF V
EVF 5V
P501
J15
P17
Head P.L
Head P.R
Head P.G
KEY 0
SCAN 0-2
LINE GND
TR901
PH901
SPI-315-44
PT4810F
PH902
SPI-315-44
TR902
PT4810F
SW903
D901
GL453
SW904
THICKNESS
LENGTH
P312
REC SAF
MP/ME
HI8
D-GND
EJECT SW
SS
LED 2
AL5V
LED 1
TRP
LM−
LM+
SRP
POS 2
POS 3
POS 1
ES
DEW
MAIN PCB
V3013A501A
P5
P305
BU5V
D-GND
SLEEP
CMR-BUSY
CMR-CLK
CMR-DATA
OPE-DATA
RESET/AC
IDL5V
EE C
AUDIO FADE
EE Y
EE 5V
WINDOW
WVR
V-R
VR
R BLK
J302
LD2
SD
HALL SET
Yo AF
IRIS LEV
Vref
CDS 4
LD1
CK
FADE SW
SP-CONT
DL9V
KENPA
P102
J303
C BLK
VTG
Y·OUT
VD
9V
WB·YD
WB·DA
AFCK
C·OUT
18V
−8V
HD
SHUT
Yv
R+B
R−B
P103
P27
V.SWP
PB ENVE
CAMERA (1) PCB
V3013A502A
P710
KEY 0
KEY 5
SCAN 7-1
SCAN 5-2
SCAN 6-2
KEY 1
KEY 2
KEY 3
KEY 4
SCAN 7-2
SCAN 4-2
P309
M-GND
CMP
UNREG (M)
CME
RESET
UNREG
EVF GND
EVF 5V
Lithium
AL
P308
HEV−
Hw−
Hw+
Hv−
Hv+
Hu−
Hu+
HEV+
Lu
Lv
Lw
FG−
FG+
P307
PG−
PG+
CAPSTAN MOTOR
DRUM MOTOR
P304
ZOOM-T
ZOOM-W
Z·ENC-V5
Z·ENC V1
Z·ENC OUT
HALL IN+
HALL OUT+
HALL IN−
HALL OUT−
C−
C+
M−
M+
B
A
SENS
SENS OUT
SENS LED
J709
POWER SUPPLY PCB
V3013A502D
P706
P306
UNR-GND
C·18V
C·9V
C·−8V
C·DL9V
AF6V
C·5V
LED.IHQ
TARRY
W.B
V
EJECT
IRIS
KEY 5
B (POWER SUPPLY) LINE

INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
(TAPE SPEED:SP)

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV

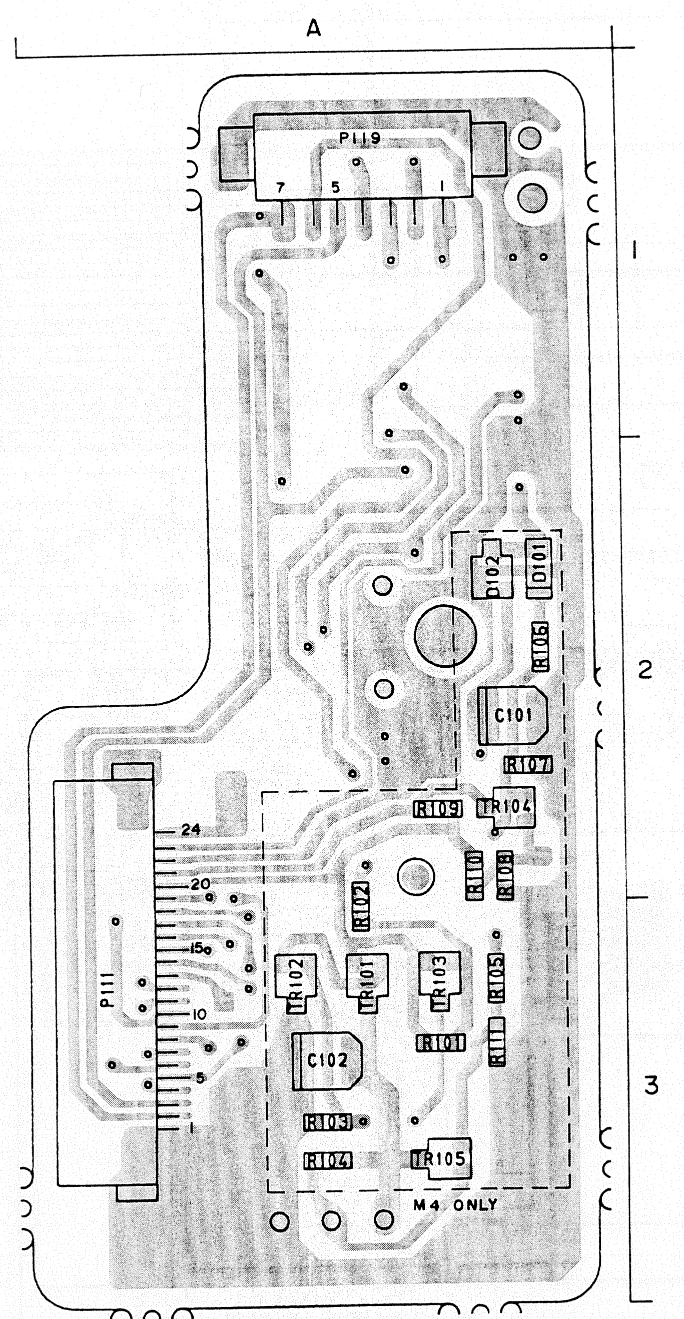

F
G
H
I
J
K
1
2
3
4
5
6
7
8
MIC BLK
GND
WIND
L MIC OUT
R MIC OUT
Lch AMP
Rch AMP
L MIC IN
R MIC IN
FOCUS
KEY4
KEY5
S1-2
P623
AMP PCB
V3013A501C
P614
AL5V
MIC Rch
MIC Lch
GND
P501
PRE AMP PCB
V3013A501B
P926
REC CURR1
REC CURR2
(TEST)
P915
REC5V
ST/MO
ME
TUNE
PB Y
PB ENV
REC SG
REC MUTE
REC Y
SWP
PB C
AL5V
FE ON
GND
P916
S-2(P)
S-2(R)
S-1(R)
S-1(P)
FE
FE GND
HEAD DRUM BLK
J15
VIDEO OUT
5V
AUDIO OUT
L
R
HEAD PHONE
REC
V OUT
AL5V
LINEOUT L
LINEOUT R
AV JACK BLK
Head P.L
Head P.R
Head P.G
KEY 0
SCAN 0-2
LINE GND
P17
CCD PCB
V3013A502C
J1
18V
Vsub CONT
øR
CH2
CH1
IV3
IV1
-8V
5V
øH1
øH2
IV4
IV2
Isub
CCD
P101
J302
P102
LD1
LD2
CK
SD
FADE SW
HALL SET
Yo AF
SP-CONT
IRIS LEV
DL9V
Vref
KENPA
CDS 4
P5
P305
BUS5V
D-GND
SLEEP
CMR-BUSY
CMR-CLK
CMR-DATA
OPE-DATA
RESET/AC
IDL5V
EE C
AUDIO FADE
EE Y
EE 5V
WINDOW
WVR
V-R
VR
R BLK
J303
P103
C BLK
C·OUT
VTG
Y·OUT
VD
HD
9V
SHUT
WB·YD
Yv
WB·DA
AFCK
R+B
R-B
MAIN PCB
V3013A501A
CAMERA (2) PCB
V3013A502B
P128
C-OUT
B-Y
AGC OUT
V·AP
CY1
CY
IRIS LEV
Y-OUT
R-Y
CDS4
YE1
YE
FH/2
(TEST)
P27
V.SWP
PB ENVE
(TEST)
CAMERA (1) PCB
V3013A502A
UNREG
EVF GND
EVF 5V
Lithium
AL
P308
HEV-
Hw-
Hw+
Lw
Hv-
Hv+
Hu-
Hu+
HEV+
Lu
Lv
FG-
FG+
P307
PG-
PG+
CAPSTAN MOTOR
DRUM MOTOR
P304
ZOOM-T
ZOOM-W
Z·ENC-V5
Z·ENC V1
Z·ENC OUT
HALL IN+
HALL OUT+
HALL IN-
HALL OUT-
C-
C+
M-
M+
B
A
SENS
SENS OUT
SENS LED
LENS BLK
P706
P306
UNR-GND
C·18V
C·9V
C·-8V
C·DL9V
AF6V
C·5V
LED.IHQ
TARRY
RESET
POWER SUPPLY PCB
V3013A502D

PV—M4
CONNECTION DIAGRAM
No.15-1 V301301M
A1

B (POWER SUPPLY) LINE

INDICATED VOLTAGES WERE MEASURED DURING PB MODE.
(TAPE SPEED: SP)

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN µF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN µF/WV


A
1
2
3
P119
7
5
1
D102
D101
R106
C101
R107
R109
TR104
R110
R108
R102
24
20
15
10
5
P111
TR102
TR101
TR103
R105
C102
R101
R111
R103
R104
TR105
M4 ONLY

CONNECTOR PCB V3013A503B (BOTTOM)

PRINCIPAL PARTS LOCATION

DIODEs

D101	A2
D102	A2

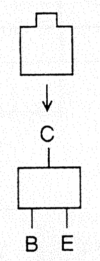
TRANSISTORs

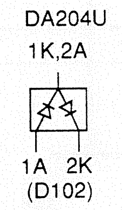
TR101	A3
TR102	A3
TR103	A3
TR104	A2
TR105	A3

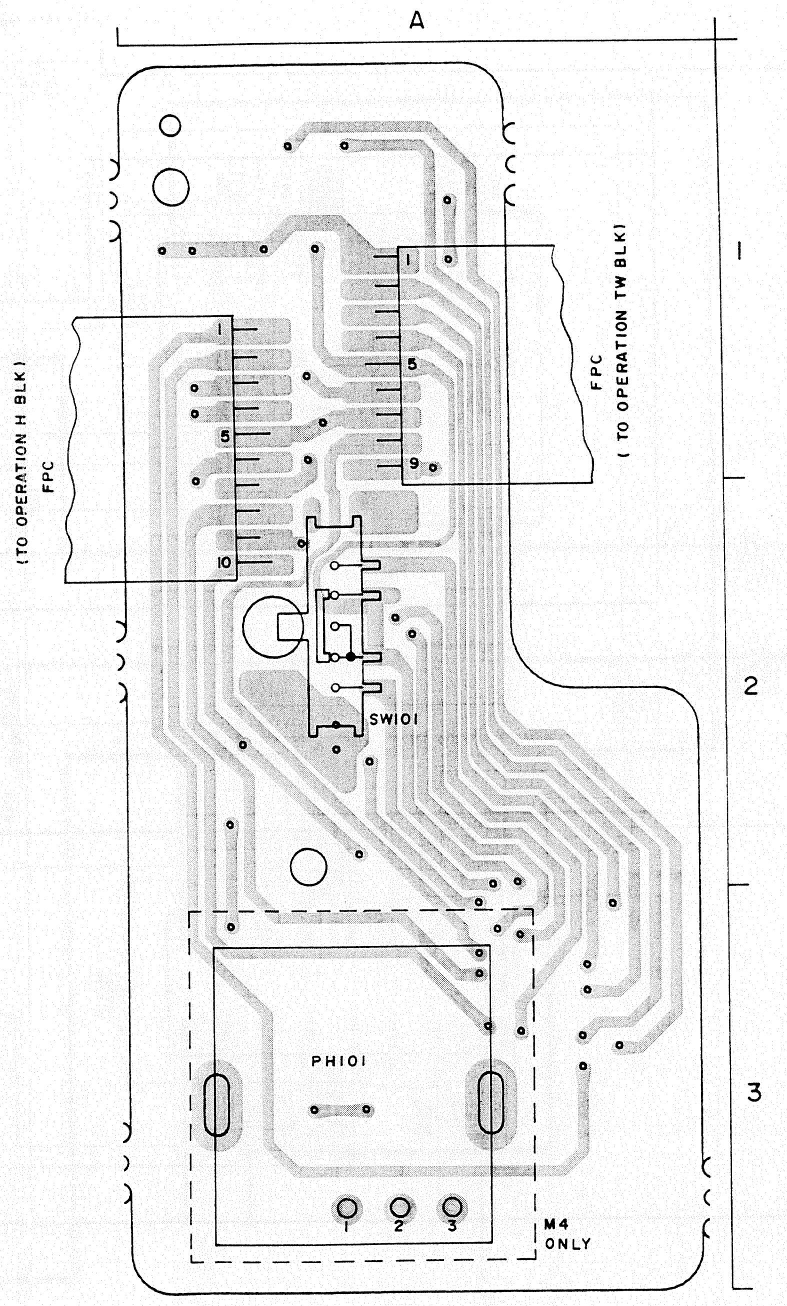
CONNECTORs

P111	A2,3
P119	A1

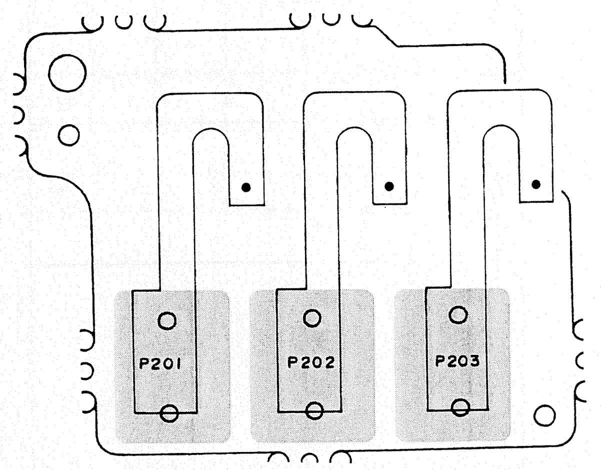
SINGLE CHIP TRANSISTOR



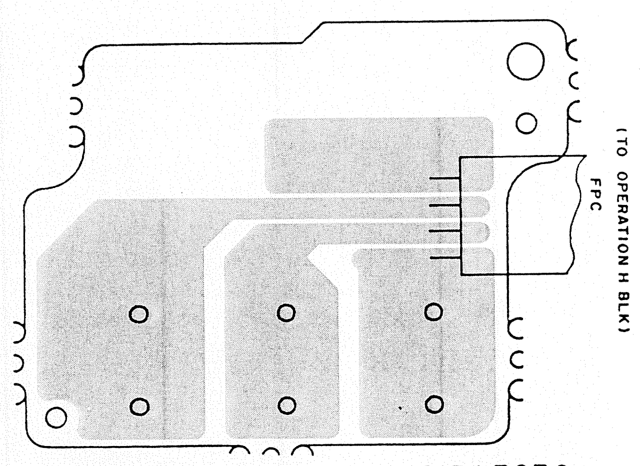

DA204U
1K,2A
1A 2K
(D102)


A
1
2
3
1
5
9
FPC
(TO OPERATION TW BLK)
1
5
10
FPC
(TO OPERATION H BLK)
SW101
PH101
1
2
3
M4 ONLY

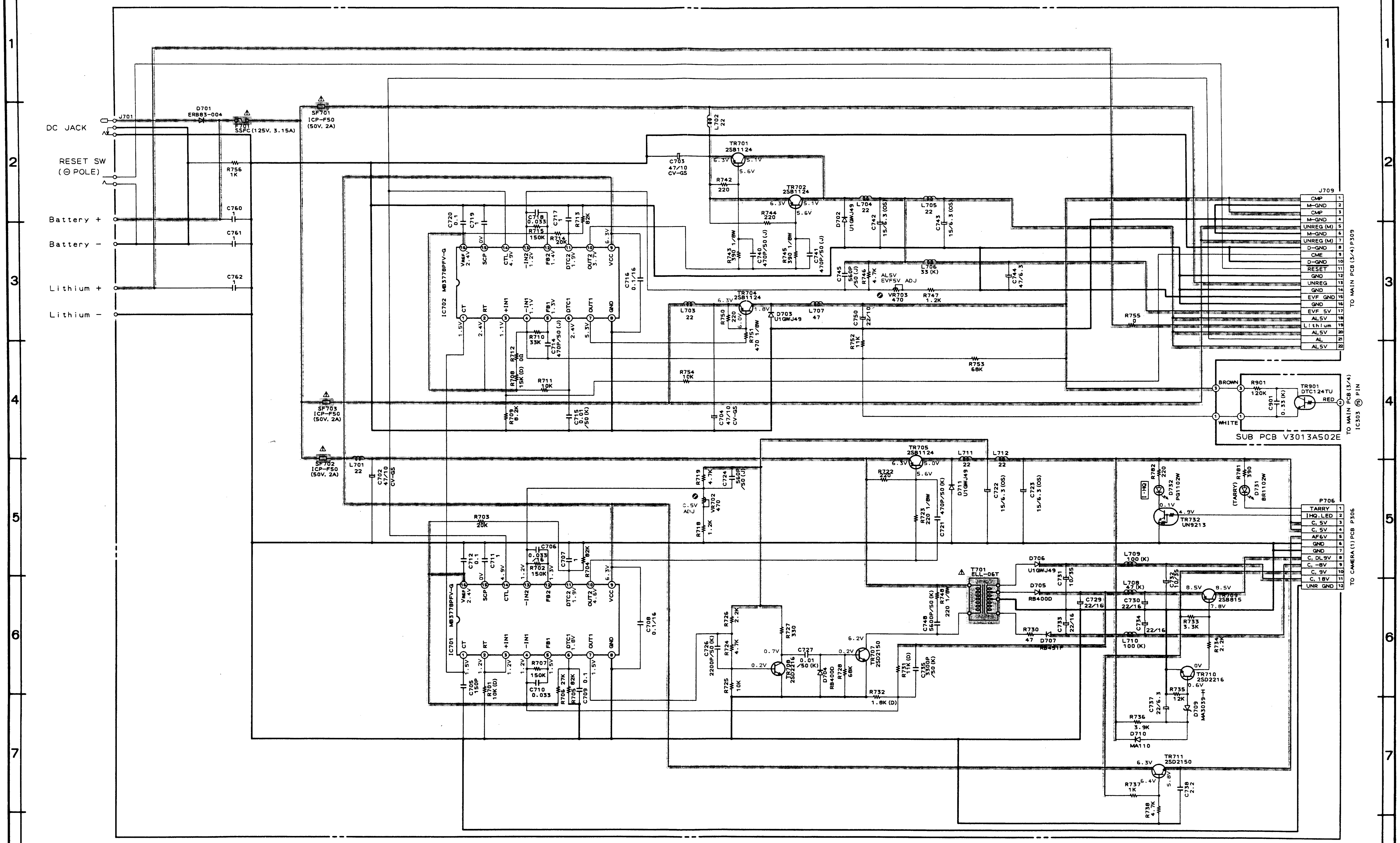
CONNECTOR PCB V3013A503B (TOP)


P201
P202
P203

REMOCON PIN PCB V3013A503C
(TOP) (PV-M4 ONLY)


FPC
(TO OPERATION H BLK)

REMOCON PIN PCB V3013A503C
(BOTTOM) (PV-M4 ONLY)


DC JACK
RESET SW
(⊖ POLE)
Battery +
Battery −
Lithium +
Lithium −
J701
D701
ERB83-004
F701
SSFC(125V, 3.15A)
R756
1K
C760
C761
C762
SF701
ICP-F50
(50V, 2A)
SF703
ICP-F50
(50V, 2A)
SF702
ICP-F50
(50V, 2A)
L701
22
C702
47/10
CV-GS
IC702 MB3778PFV-G
IC701 MB3778PFV-G
Vref
SCP
CTL
−IN2
FB2
DTC2
OUT2
VCC
CT
RT
+IN1
−IN1
FB1
DTC1
OUT1
GND
L702
22
TR701
2SB1124
C703
47/10
CV-GS
R742
220
TR702
2SB1124
R744
220
D702
U1GWJ49
L704
22
C742
15/6.3(OS)
L705
22
C743
15/6.3(OS)
L706
33(K)
C744
47/6.3
AL5V
EVF5V ADJ
VR703
470
R747
1.2K
TR704
2SB1124
D703
U1GWJ49
L703
22
L707
47
R750
220
R751
470 1/8W
C750
22/10
R752
11K
R753
68K
R754
10K
R755
0
C704
47/10
CV-GS
R703
20K
C706
R702
150K
R704
82K
C705
150P
R701
10K(D)
R707
150K
C710
0.033
R706
27K
R705
82K
C709
0.1
C708
0.1/16
R719
4.7K
C724
560P/50(J)
VR702
470
5.5V ADJ
R718
1.2K
TR705
2SB1124
R722
220
L711
22
L712
22
D711
U1GWJ49
C722
15/6.3(OS)
C723
15/6.3(OS)
R723
220 1/8W
C721
470P/50(K)
T701
ELL-06T
D706
U1GWJ49
D705
RB400D
C731
10/35
C729
22/16
C748
560P/50(K)
R748
220 1/8W
R730
47
D707
RB491F
C733
22/16
R726
2.2K
R727
330
C726
2200P/50(K)
R724
4.7K
R725
10K
TR708
2SD2216
C727
0.01/50(K)
D704
RB400D
R728
68K
TR707
2SD2150
R731
11K(D)
C735
3300P/50(K)
R732
1.8K(D)
L709
100(K)
L708
47(K)
C730
22/16
C732
10/35
C734
22/16
L710
100(K)
TR709
2SB815
R733
3.3K
R734
2.2K
TR710
2SD2216
R735
12K
C737
22/6.3
D709
MA3039-H
R736
3.9K
D710
MA110
TR711
2SD2150
R737
1K
C738
2.2
R738
4.7K
R782
220
D732
PG1102W
IHQ
R781
390
(TARRY)
D731
BR1102W
TR732
UN9213
BROWN
WHITE
R901
120K
C901
0.33(K)
TR901
DTC124TU
RED
SUB PCB V3013A502E
TO MAIN PCB (3/4) IC303 (75) PIN
J709
CMP 1
M-GND 2
CMP 3
M-GND 4
UNREG (M) 5
M-GND 6
UNREG (M) 7
D-GND 8
CME 9
D-GND 10
RESET 11
GND 12
UNREG 13
GND 14
EVF GND 15
GND 16
EVF 5V 17
AL5V 18
Lithium 19
AL5V 20
AL 21
AL5V 22
TO MAIN PCB (3/4) P309
P706
TARRY 1
IHQ.LED 2
C, 5V 3
C, 5V 4
AF6V 5
GND 6
GND 7
C, DL9V 8
C, −8V 9
C, 9V 10
C, 18V 11
UNR GND 12
TO CAMERA (1) PCB P306

POWER SUPPLY PCB V3013A502D

▨ B (POWER SUPPLY) LINE

INDICATED VOLTAGES WERE MEASURED DURING PB MODE. (TAPE SPEED: SP)

WARNING: ⚠ AND ▨ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSMENT: ⚠ ET ▨, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/16W (J)
ALL CERAMIC CAPACITORS IN µF (P=PF) 16WV (Z)
ALL ELECTROLYTIC CAPACITORS IN µF/WV (M)
ALL INDUCTORS IN µH (M)

PV−M2/M4
POWER SUPPLY & SUB SCHEMATIC DIAGRAM

No.15-3 V301303M
A1

PRINCIPAL PARTS LOCATION

ICs

IC701	B4
IC702	B4

DIODEs

D701	C2
D706	B4
D707	A3
D731	A2
D732	A2
D701	C2

INDUCTORs

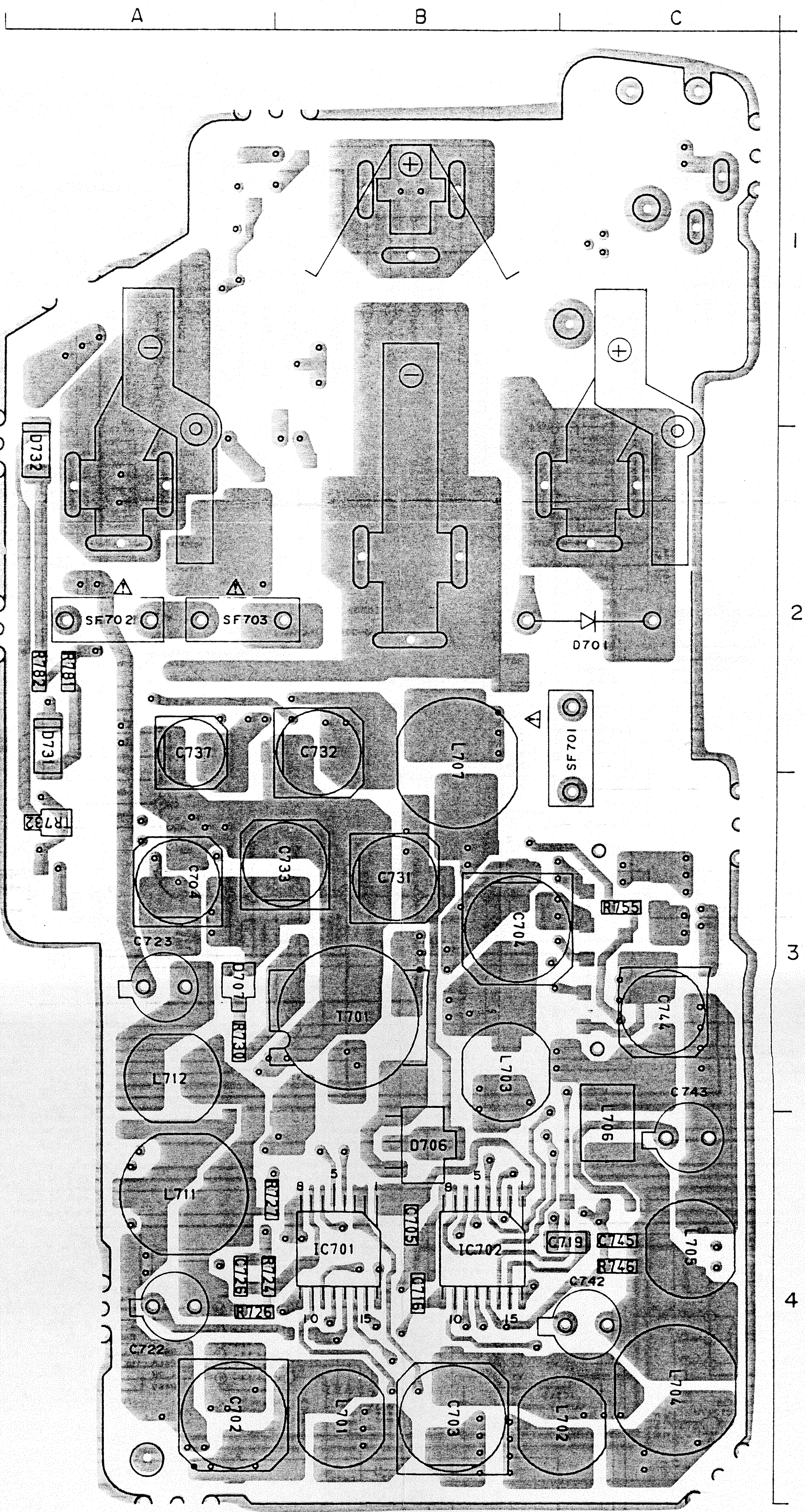
L701	B4
L702	B,C4
L703	B3
L704	C4
L705	C4
L706	C3,4
L707	B2,3
L711	A4
L712	A3

TRANSISTOR

TR732	A3

FUSEs

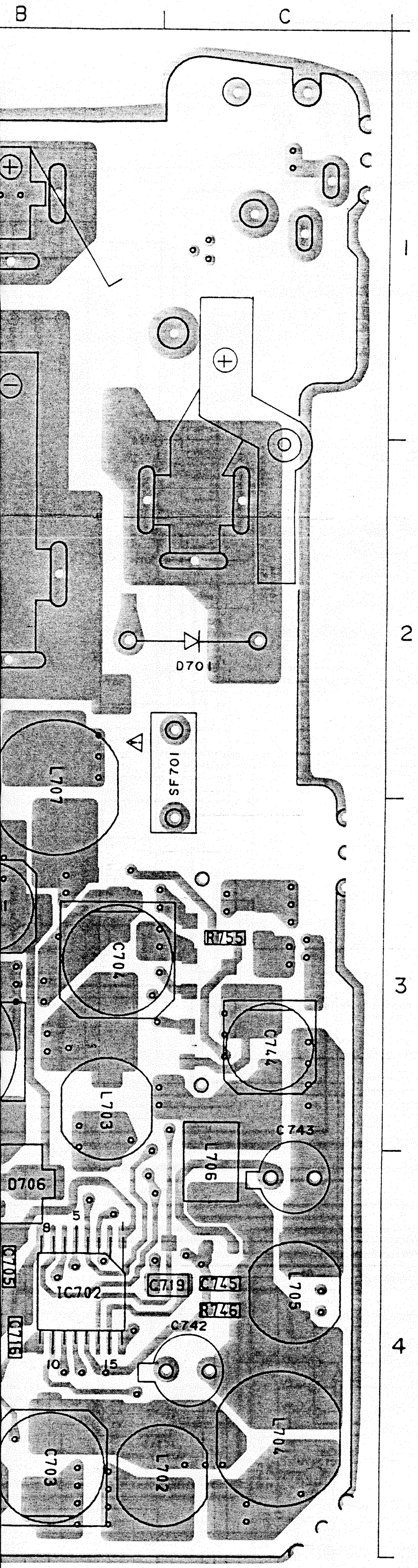
SF701	B,C2
SF702	A2
SF703	A,B2


A
B
C
1
2
3
4
SF702
SF703
D701
SF701
D732
R782
R781
D731
TR732
C737
C732
L707
C704
C733
C731
C701
R755
C723
D707
T701
R730
L712
L703
C744
C743
L706
D706
L711
R727
IC701
C705
IC702
C719
C745
R746
L705
C726
R724
R726
C742
C722
C702
L701
C703
L702
L704
8
5
10
15

POWER SUPPLY PCB V3013A502D(BOTTOM)

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY,
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL,
NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT


B
C
1
2
3
4
D701
SF701
L707
C701
R755
C744
L703
C743
L706
D706
IC702
C719
C745
R746
C742
L705
C703
L702
L704

B V3013A502D(BOTTOM)

PRINCIPAL PARTS LOCATION

DIODEs

D702	C4
D703	B3
D704	A4
D705	B3
D709	A2
D710	B2
D711	A4

CONNECTORs

J701	C1
J709	C3
P706	A,B1

INDUCTORs

L708	B3
L709	A3
L710	A3

TRANSISTORs

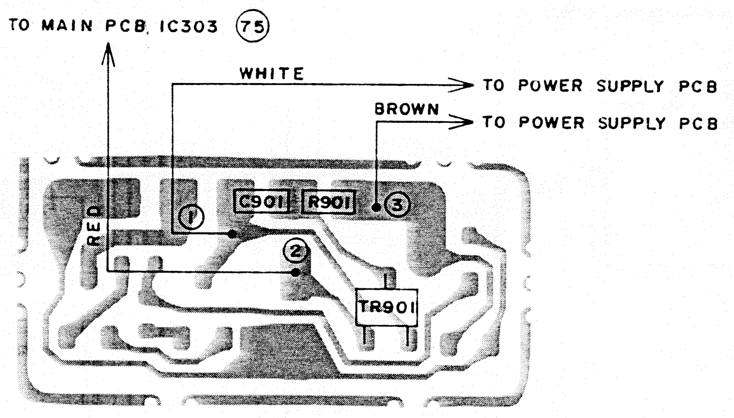
TR701	C4
TR702	C4
TR704	B3
TR705	A,B4
TR707	A3,4
TR708	A4
TR709	A3
TR710	A2
TR711	A3

VOLUMEs

VR702	B4
VR703	C4

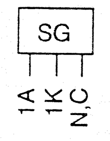
FUSE

F701	B1,5


TO MAIN PCB, IC303 (75)
WHITE
TO POWER SUPPLY PCB
BROWN
TO POWER SUPPLY PCB
RED
①
②
③
C901
R901
TR901

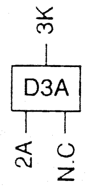
SUB PCB V3013A502E

UIGWJ49



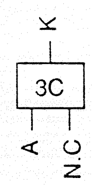
(D702,703)
(D706,711)

RB400D



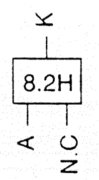
(D704,705)

RB451F

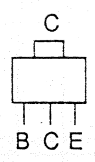


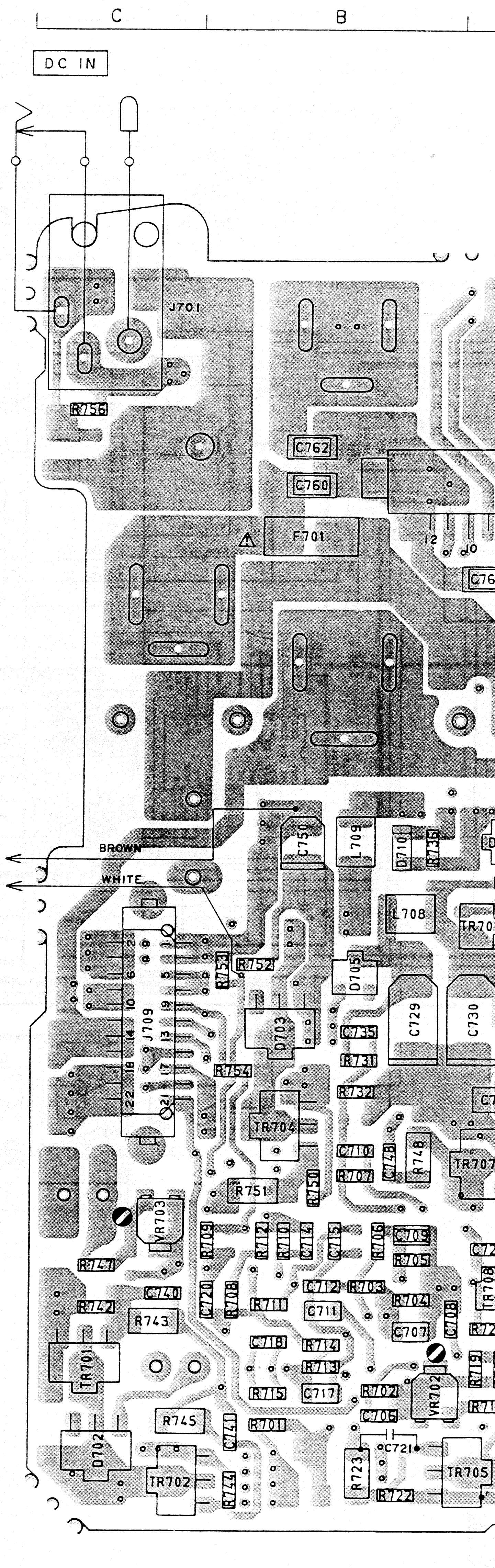
(D707)

MA3039-HTW



(D709)




C
B
DC IN
J701
R756
C762
C760
F701
12
10
TO SUB PCB ③
TO SUB PCB ①
BROWN
WHITE
C750
L709
D710
R736
L708
J709
R753
R752
D705
C729
C730
D703
C735
R731
R754
R732
TR704
C710
R707
C748
R748
TR707
R751
R750
VR703
R709
R712
R710
C714
C715
R706
C709
R705
R747
C720
R708
C712
R703
R704
R742
C740
R743
R711
C711
C707
C708
TR701
C718
R714
R713
VR702
R715
C717
R702
R745
C706
C741
R701
C721
D702
TR702
R744
R723
R722
TR705

POWER - SUPPLY PCB V3013A502

PRINCIPAL PARTS LOCATION

DIODEs

D702	C4
D703	B3
D704	A4
D705	B3
D709	A2
D710	B2
D711	A4

CONNECTORs

J701	C1
J709	C3
P706	A,B1

INDUCTORs

L708	B3
L709	A3
L710	A3

TRANSISTORs

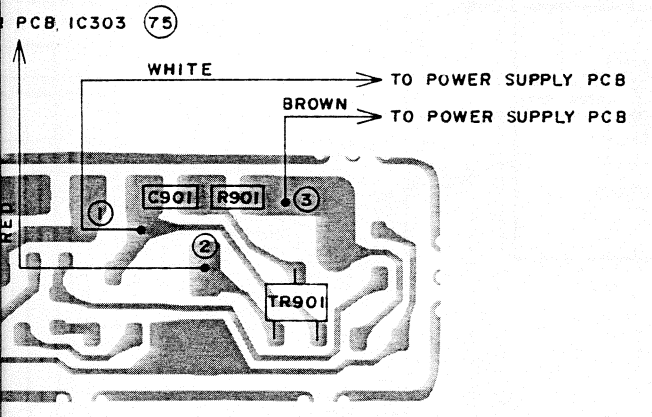
TR701	C4
TR702	C4
TR704	B3
TR705	A,B4
TR707	A3,4
TR708	A4
TR709	A3
TR710	A2
TR711	A3

VOLUMEs

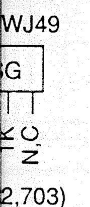
VR702	B4
VR703	C4

FUSE

F701	B1,5

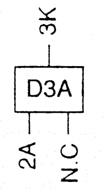

PCB, IC303 (75)
WHITE
BROWN
TO POWER SUPPLY PCB
TO POWER SUPPLY PCB
C901
R901
①
②
③
TR901

B PCB V3013A502E



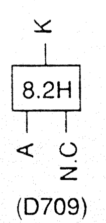
2,703)
6,711)

RB400D

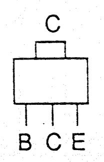


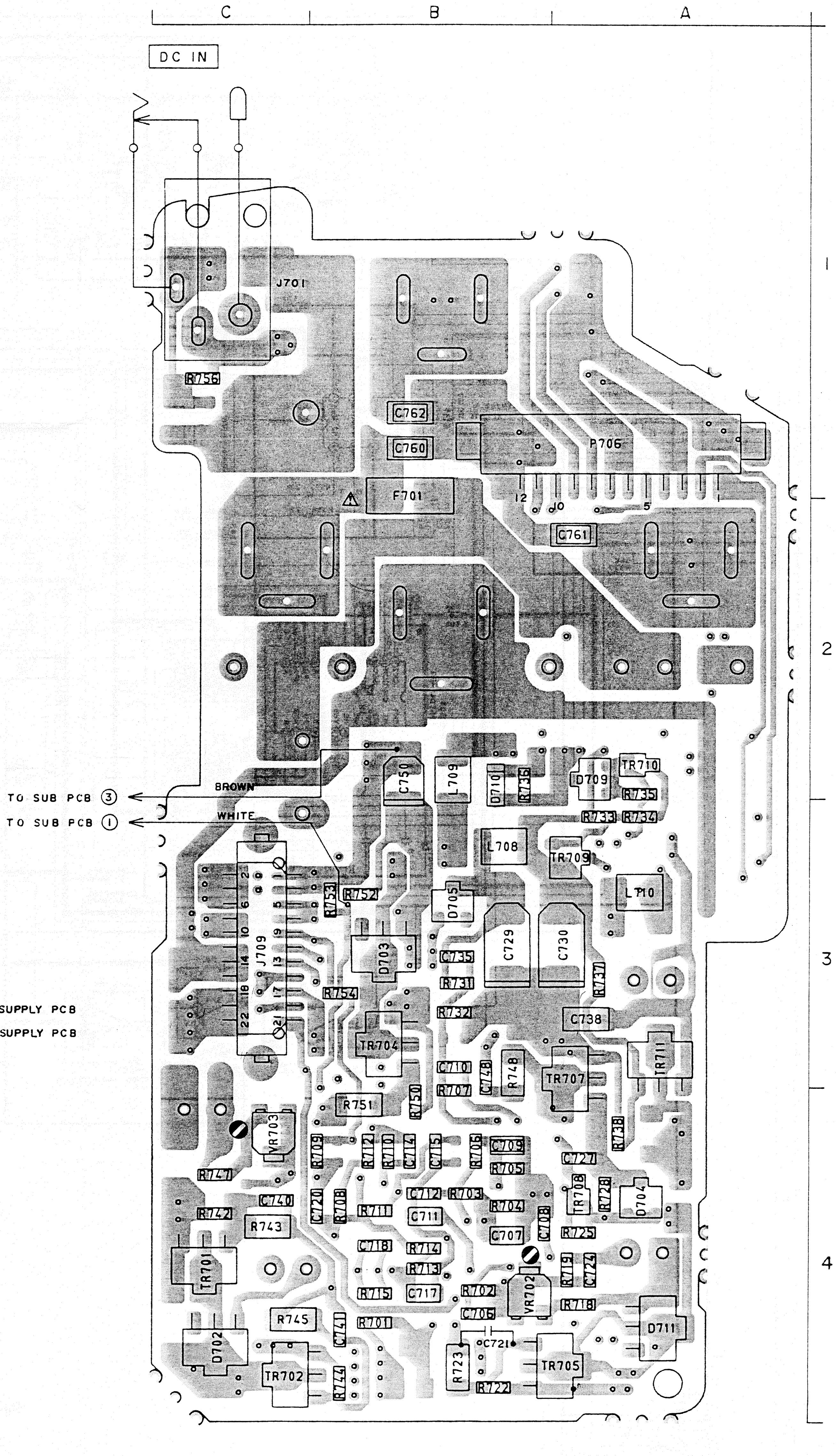
(D704,705)

MA3039-HTW

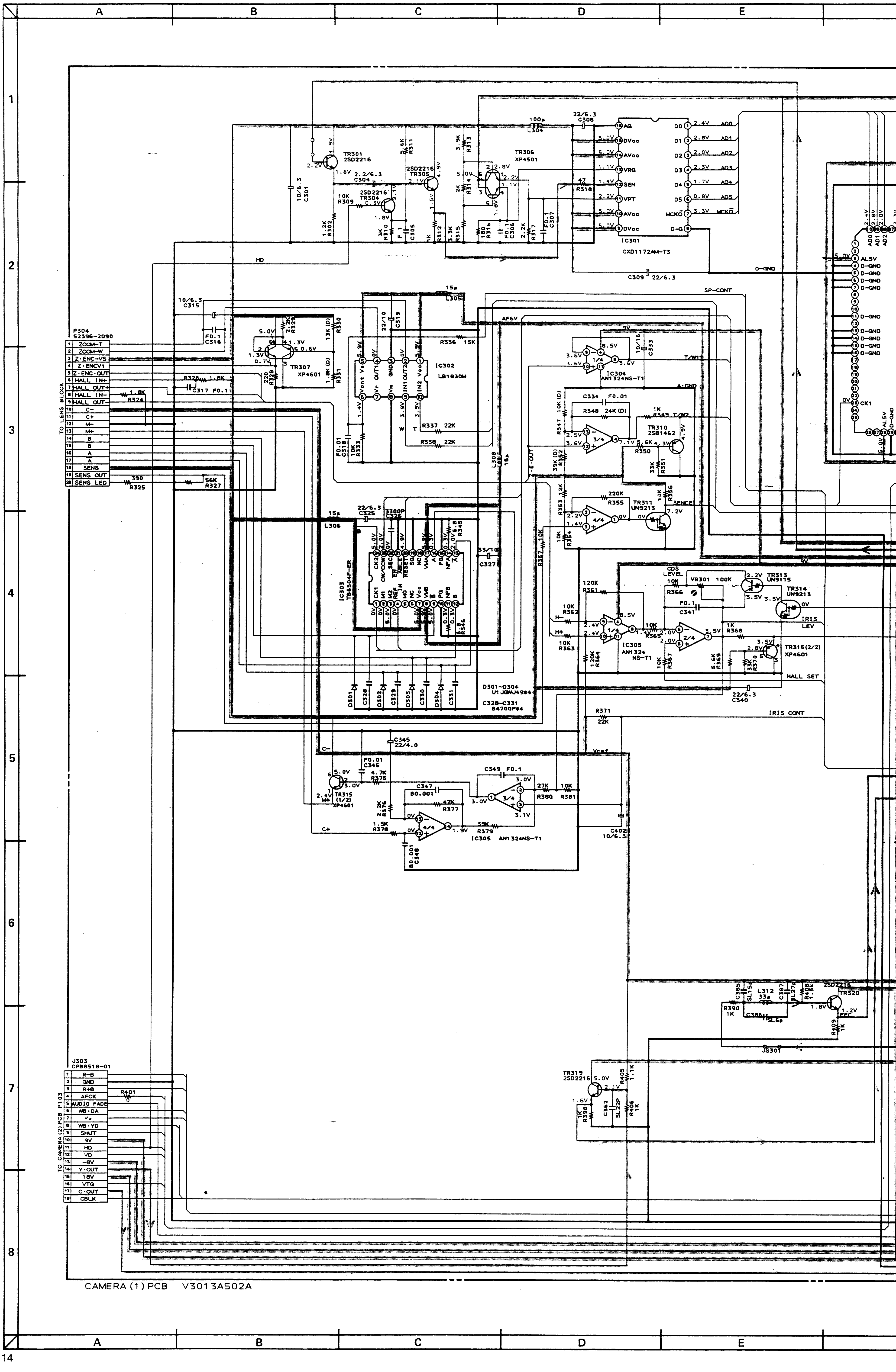


(D709)

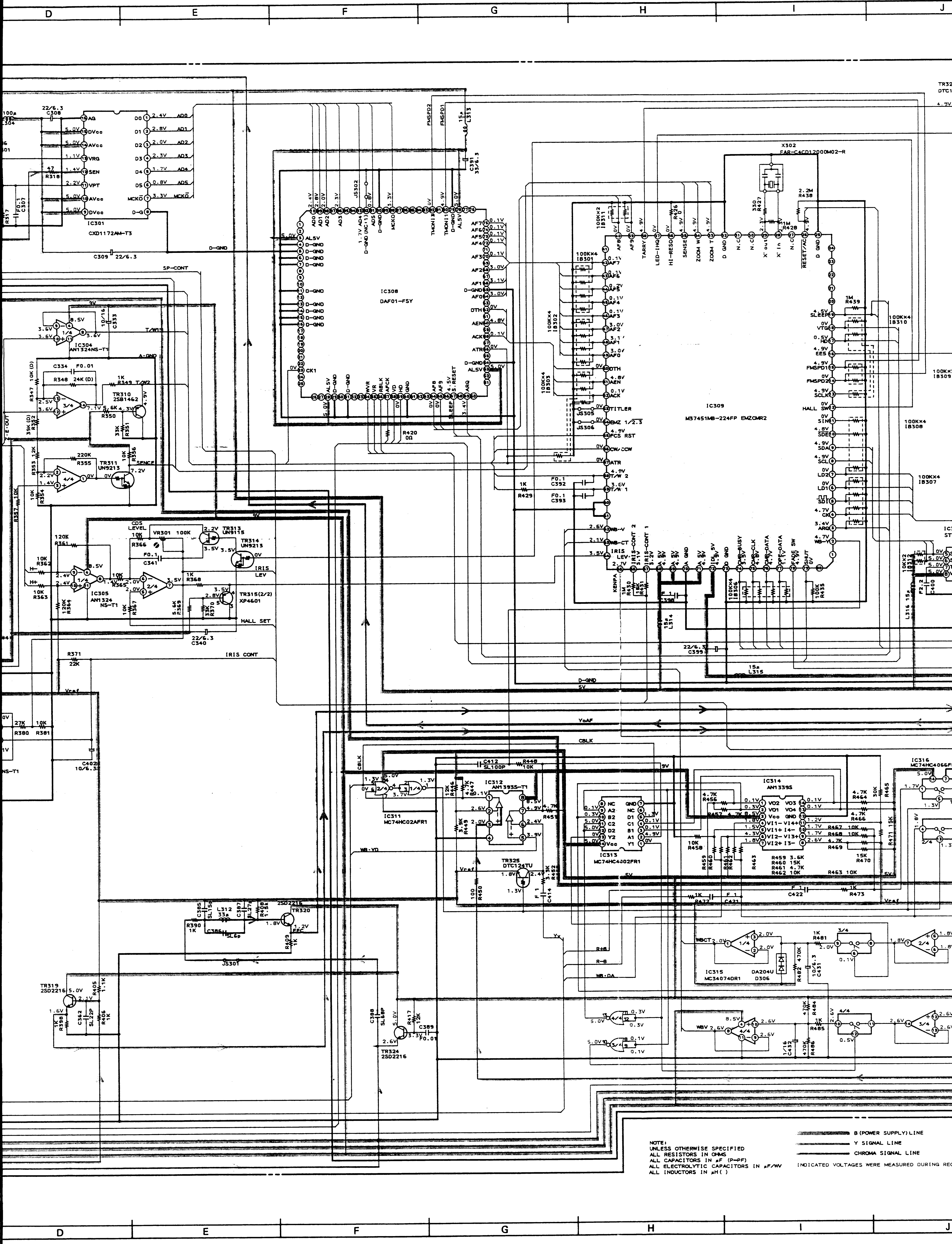



C
B
A
1
2
3
4
DC IN
J701
R756
C762
C760
P706
12
10
5
F701
C761
TO SUB PCB ③
TO SUB PCB ①
BROWN
WHITE
C750
L709
D710
R736
D709
TR710
R735
R733
R734
L708
TR709
L710
R753
R752
D705
J709
D703
C735
R731
C729
C730
R737
R754
R732
C738
TR704
C710
R707
C748
R748
TR707
TR711
R751
R750
VR703
R709
R712
R710
C714
C715
R706
C709
R705
C727
R738
R747
C720
R708
R711
C712
R703
R704
R708
R728
D704
R742
C740
R743
C711
C707
C708
R725
C718
R714
R713
R719
C724
TR701
R715
C717
R702
VR702
R718
R745
C741
R701
C706
D711
D702
C721
R723
TR705
TR702
R744
R722

POWER-SUPPLY PCB V3013A502D (TOP)


A
B
C
D
E
1
2
3
4
5
6
7
8
P304
52396-2090
TO LENS BLOCK
1 ZOOM-T
2 ZOOM-W
3 Z·ENC-VS
4 Z·ENCV1
5 Z·ENC·OUT
6 HALL IN+
7 HALL OUT+
8 HALL IN-
9 HALL OUT-
10 C-
11 C+
12 M-
13 M+
14 B
15 B
16 A
17 A
18 SENS
19 SENS OUT
20 SENS LED
TR301
2SD2216
TR304
2SD2216
TR305
2SD2216
TR306
XP4501
IC301
CXD1172AM-T3
AG
DVcc
AVcc
VRG
SEN
VPT
D0
D1
D2
D3
D4
D5
MCKO
D-G
AD0
AD1
AD2
AD3
AD4
AD5
D-GND
C309 22/6.3
HD
SP-CONT
AF6V
TR307
XP4601
IC302
LB1830M
IC304
AN1324NS-T1
T/W1
A-GND
TR310
2SB1462
T/W2
TR311
UN9213
SENCE
Z·E·OUT
L308
L306
IC303
TB6504F-ER
D301-D304
U1JGWJ49#4
C328-C331
84700P#4
CDS LEVEL
VR301 100K
TR313
UN9115
TR314
UN9215
IRIS LEV
IC305
AN1324NS-T1
TR315(2/2)
XP4601
HALL SET
IRIS CONT
9V
C345 22/4.0
C-
C+
Vref
TR315 (1/2)
XP4601
C402 10/6.3
TR320
2SD2216
JS301
TR319
2SD2216
J303
CP88518-01
TO CAMERA (2) PCB P103
1 R-B
2 GND
3 R+B
4 AFCK
5 AUDIO FADE
6 WB·DA
7 Yv
8 WB·YD
9 SHUT
10 9V
11 HD
12 VD
13 -8V
14 Y·OUT
15 18V
16 VTG
17 C·OUT
18 CBLK
AL5V
CK1

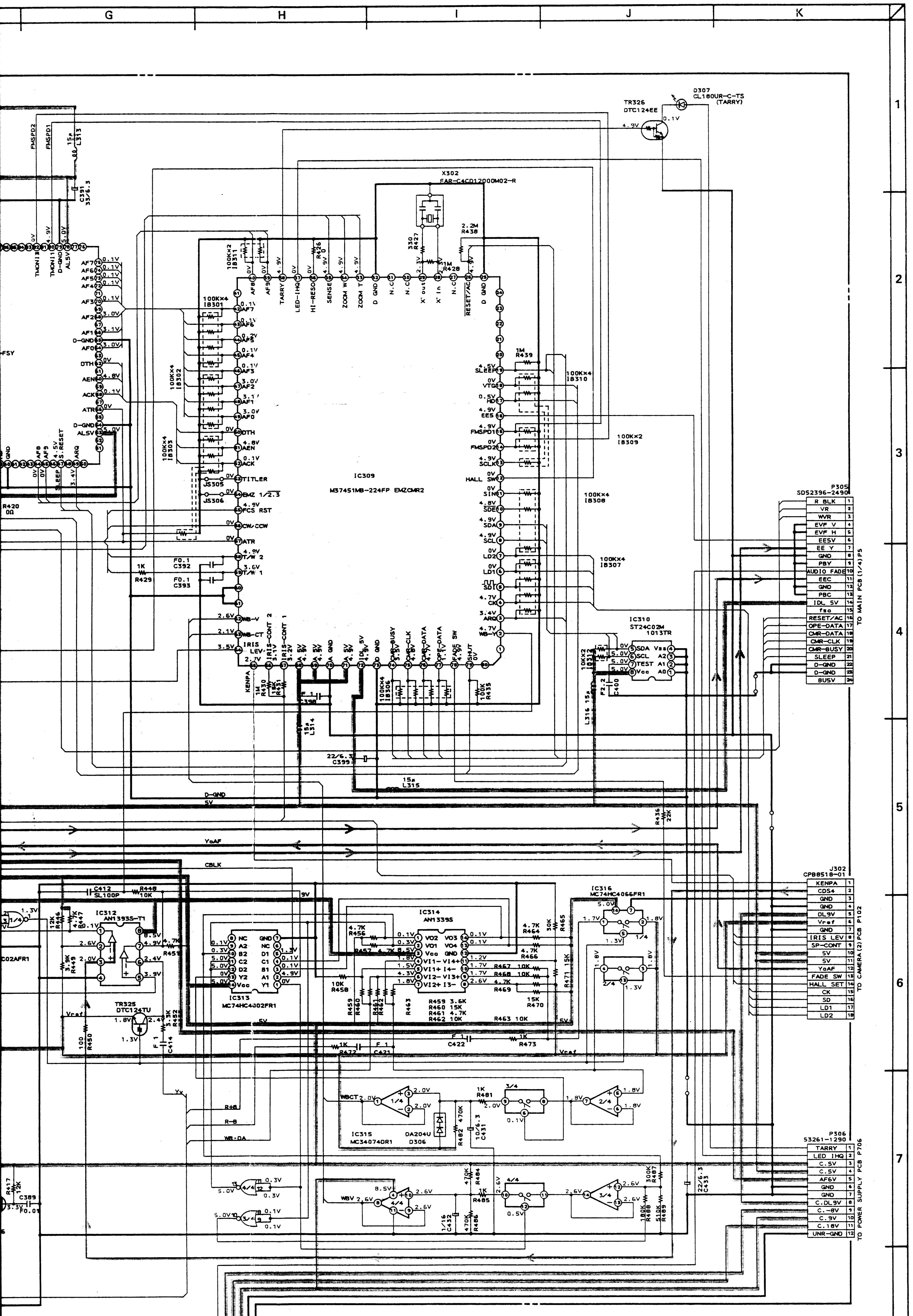
CAMERA (1) PCB V3013A502A


D
E
F
G
H
I
J
IC301
CXD1172AM-T3
IC304
AN1324NS-T1
TR310
2SB1462
TR311
UN9213
IC305
AN1324NS-T1
TR313
UN9115
TR314
UN9213
TR315(2/2)
XP4601
VR301 100K
CDS LEVEL
IRIS LEV
HALL SET
IRIS CONT
SP-CONT
SENCE
D-GND
IC308
DAF01-FSY
IC309
M37451MB-224FP EMZCMR2
X302
FAR-C4CD12000M02-R
IB301
IB302
IB303
IB305
IB306
IB307
IB308
IB309
IB310
JS301
JS302
JS305
JS306
IC311
MC74HC02AFR1
IC312
AN13935-T1
IC313
MC74HC4052FR1
IC314
AN1339S
IC315
MC34074DR1
IC316
MC74HC4066F
DA204U
D306
TR319
2SD2216
TR320
2SD2216
TR324
2SD2216
TR325
DTC124TU
L312
L313
L314
L315
L316
YoAF
CBLK
WB-YD
WB-DA
WBCT
WBV
R+B
R-B
Yv
Vref
9V
5V

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN µF (P→PF)
ALL ELECTROLYTIC CAPACITORS IN µF/WV
ALL INDUCTORS IN µH( )

B (POWER SUPPLY) LINE
Y SIGNAL LINE
CHROMA SIGNAL LINE

INDICATED VOLTAGES WERE MEASURED DURING REC


G
H
I
J
K
1
2
3
4
5
6
7
8
D307
CL180UR-C-TS
(TARRY)
TR326
DTC124EE
X302
FAR-C4CD12000M02-R
IC309
M37451MB-224FP EMZCMR2
100Kx4
IB301
IB302
IB303
IB306
IB307
IB308
IB310
100Kx2
IB309
IB311
IB312
IC310
ST24C02M
1013TR
IC312
AN1393S-T1
IC313
MC74HC4302FR1
IC314
AN1339S
IC315
MC34074DR1
IC316
MC74HC4066FR1
DA204U
D306
TR325
DTC124TU
L313
L314
L315
L316
C391
C392
C393
C396
C399
C400
C412
C414
C421
C422
C431
C432
C433
C389
R420
R429
R430
R436
R438
R439
R447
R448
R451
R452
R456
R458
R459 3.6K
R460 15K
R461 4.7K
R462 10K
R463 10K
R464
R465
R466
R467 10K
R468 10K
R469
R470
R471
R472
R473
R481
R482
R484
R485
R486
R487
R488
R489
JS305
JS306
TITLER
EMZ 1/2.3
FCS RST
CW/CCW
ATR
T/W 2
T/W 1
WB-V
WB-CT
IRIS LEV
KENPA
IRIS-CONT 2
IRIS-CONT 1
IDL 5V
CMR-BUSY
CMR-CLK
CMR-DATA
OPE-DATA
FADE SW
SHUT
SLEEP
VTG
HD
EE5
FMSPD1
FMSPD2
SCLK
HALL SW
SIN
SDE
SDA
SCL
LD2
LD1
SDI
CK
ARQ
WB-Y
TARRY
LED-IHQ
HI-RESO
SENSE
ZOOM W
ZOOM T
D GND
N.C
X' out
X' in
RESET/AC
D-GND
5V
YoAF
CBLK
Vref
Yv
R+B
R-B
WB-DA
WBCT
WBV
9V
P305
SDS2396-2490
1 R BLK
2 VR
3 WVR
4 EVF V
5 EVF H
6 EE5V
7 EE Y
8 GND
9 PBY
10 AUDIO FADE
11 EEC
12 GND
13 PBC
14 IDL 5V
15 fso
16 RESET/AC
17 OPE-DATA
18 CMR-DATA
19 CMR-CLK
20 CMR-BUSY
21 SLEEP
22 D-GND
23 D-GND
24 BUSV
TO MAIN PCB (1/4) P5
J302
CPB8518-01
1 KENPA
2 CDS4
3 GND
4 GND
5 DL9V
6 Vref
7 GND
8 IRIS LEV
9 SP-CONT
10 5V
11 5V
12 YoAF
13 FADE SW
14 HALL SET
15 CK
16 SD
17 LD1
18 LD2
TO CAMERA (2) PCB P102
P306
53261-1290
1 TARRY
2 LED IHQ
3 C.5V
4 C.5V
5 AF6V
6 GND
7 GND
8 C.DL9V
9 C.-8V
10 C.9V
11 C.18V
12 UNR-GND
TO POWER SUPPLY PCB P706

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P-PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV
ALL INDUCTORS IN μH( )

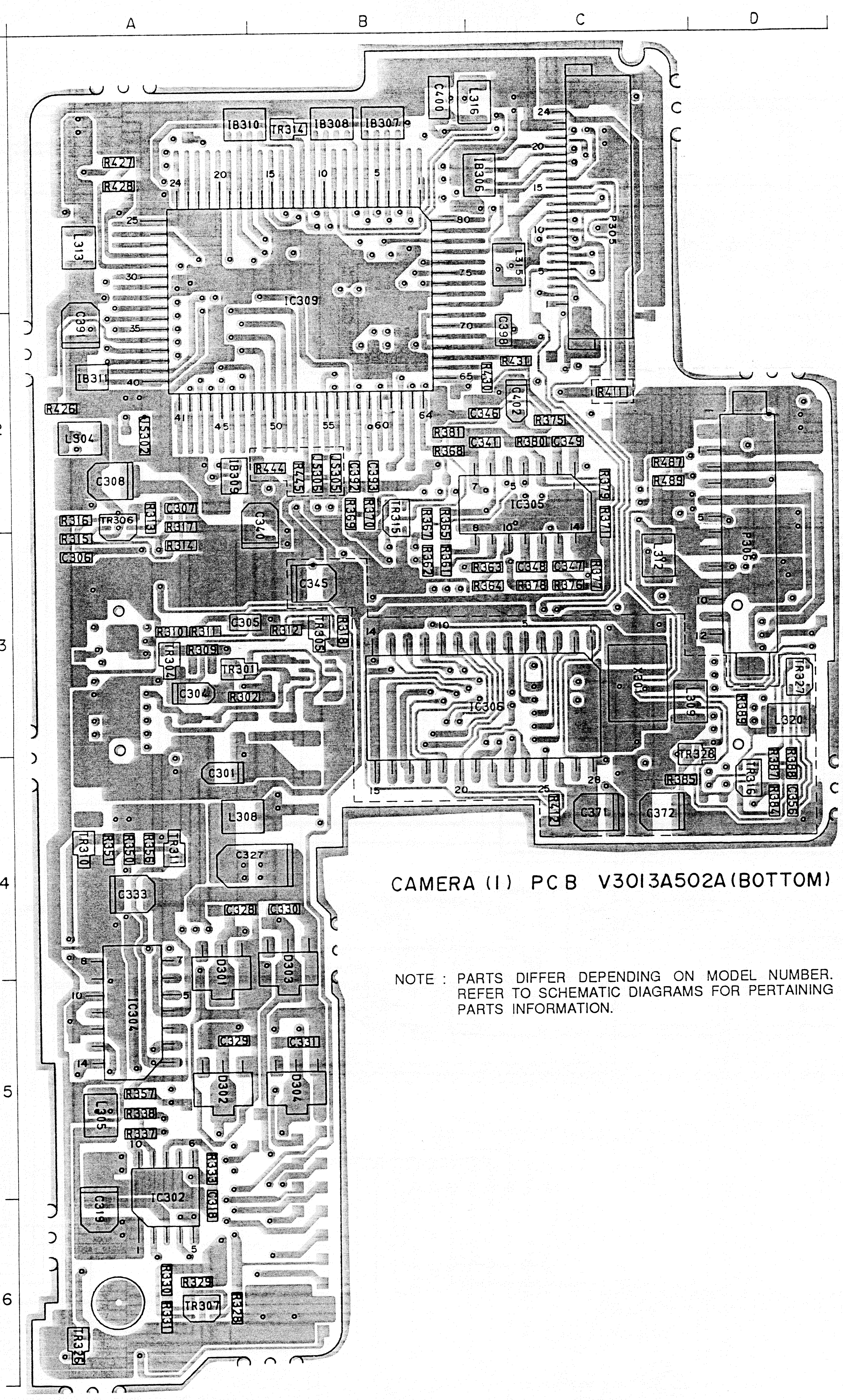
▨ B (POWER SUPPLY) LINE
▬ Y SIGNAL LINE
━ CHROMA SIGNAL LINE

INDICATED VOLTAGES WERE MEASURED DURING REC MODE.

PV-M2/M4
CAMERA (1)
SCHEMATIC DIAGRAM

No.15-4 V301304M
A0

G H I J K


A
B
C
D
1
2
3
4
5
6
IC302
IC304
IC305
IC306
IC309
IB306
IB307
IB308
IB309
IB310
IB311
D301
D302
D303
D304
P305
P306
X301
L304
L305
L308
L309
L312
L313
L315
L316
L320
TR301
TR304
TR305
TR306
TR307
TR310
TR311
TR314
TR315
TR316
TR326
TR327
TR328

CAMERA (1) PCB V3013A502A (BOTTOM)

NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER. REFER TO SCHEMATIC DIAGRAMS FOR PERTAINING PARTS INFORMATION.

PRINCIPAL PARTS

ICs

IC302	A5,6
IC304	A4,5
IC305	B,C
IC306	B,C
IC309	A,B

DIODEs

D301	A4,5
D302	A5
D303	B4,5
D304	B5

INTEGRATED BLOCK

IB306	C1
IB307	B1
IB308	B1
IB309	A2
IB310	A,B
IB311	A2

CONNECTORs

P305	C1,
P306	D3

X - TAL

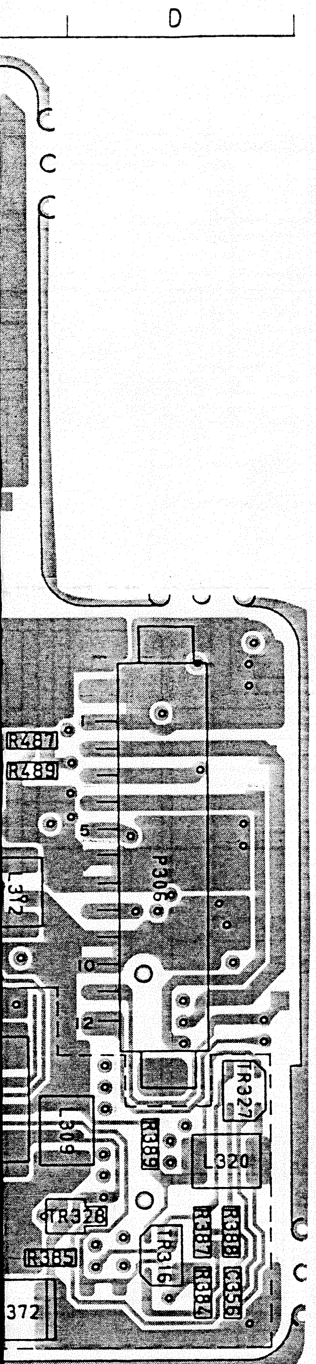
X301	C3

INDUCTORs

L304	A2
L305	A5
L308	A4
L309	C,
L312	C3
L313	A1
L314	B1
L315	C1
L316	B,
L320	D3

TRANSISTORs

TR301	A3
TR304	A3
TR305	B3
TR306	A2
TR307	A6
TR310	A4
TR311	A4
TR314	B1
TR315	B2
TR316	D4
TR326	A6
TR327	D3
TR328	C,


D
R487
R489
P306
L312
TR327
R389
L320
TR328
TR316
R385
372

3A502A (BOTTOM)

G ON MODEL NUMBER.
GRAMS FOR PERTAINING

PRINCIPAL PARTS LOCATION

ICs

IC302	A5,6
IC304	A4,5
IC305	B,C2
IC306	B,C3
IC309	A,B1,2

DIODEs

D301	A4,5
D302	A5
D303	B4,5
D304	B5

INTEGRATED BLOCKs

IB306	C1
IB307	B1
IB308	B1
IB309	A2
IB310	A,B1
IB311	A2

CONNECTORs

P305	C1,2
P306	D3

X - TAL

X301	C3

INDUCTORs

L304	A2
L305	A5
L308	A4
L309	C,D3
L312	C3
L313	A1
L314	B1
L315	C1
L316	B,C1
L320	D3

TRANSISTORs

TR301	A3
TR304	A3
TR305	B3
TR306	A2,3
TR307	A6
TR310	A4
TR311	A4
TR314	B1
TR315	B2,3
TR316	D4
TR326	A6
TR327	D3
TR328	C,D4

PRINCIPAL PARTS LOCATION

ICs

IC301	A2,3
IC303	A,B4,5
IC307	B,C3
IC308	A,B1,2
IC310	B,C1
IC311	A,B1
IC312	B1
IC313	B2
IC314	B2
IC315	C,D2
IC316	C2

DIODEs

D306	C2,3
D307	A6

INTEGRATED BLOCKs

IB301	B2
IB302	B2
IB303	B1,2
IB312	C1

INDUCTORs

L306	A4
L310	C4
L314	C1,2

TRANSISTORs

TR313	B1
TR318	D2
TR319	C4
TR320	C3
TR321	C4
TR322	C3
TR323	C3
TR324	D3
TR325	B1

VOLUME

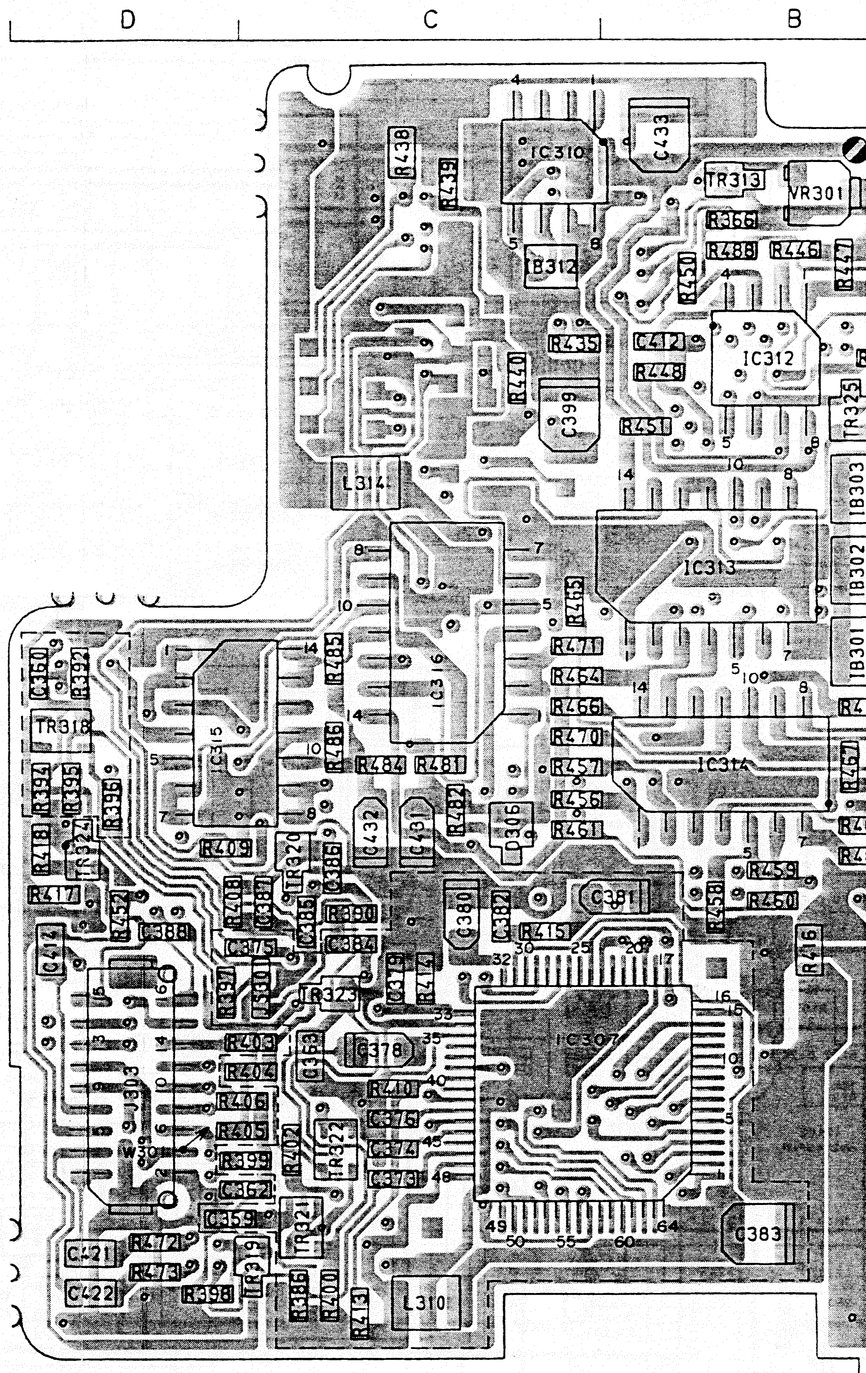
VR301	B1

X - TAL

X302	A1

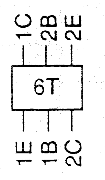
CONNECTORs

J302	A3
J303	D3
P304	A5,6


D
C
B
IC310
C433
TR313
VR301
R438
R439
R366
R488
R446
IB312
R450
R435
C412
R448
IC312
R440
C399
R451
L314
IC313
R465
R485
R471
R464
R466
R470
R457
R456
R461
IC314
C360
R392
TR318
IC316
C315
R486
R484
R481
R482
D306
R394
R395
R396
R418
TR324
R417
R409
TR320
C386
C432
C431
C381
R459
R460
R452
C388
C375
C390
C384
R415
C382
C380
C411
TR323
C379
R412
R403
R404
C378
IC307
R406
R405
R399
R410
C376
C374
C373
TR322
R402
C362
C359
TR321
C421
R472
R473
C422
R398
TR319
R386
R400
R413
L310
C383
R458
R416

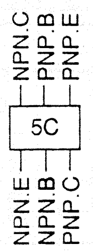
CAMERA (I) PCB V3013A502A (TOP)

XP4115
(PNP WITH RESISTOR x 2)


1C
2B
2E
6T
1E
1B
2C

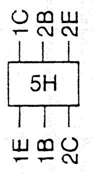
(TR327)

XP4601
(PNP & NPN)


NPN.C
PNP.B
PNP.E
5C
NPN.E
NPN.B
PNP.C

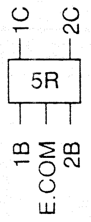
(TR307,315
TR316)

XP4501
(NPN x 2)


1C
2B
2E
5H
1E
1B
2C

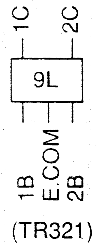
(TR306)

XP1501
(NPN x 2)


1C
2C
5R
1B
E.COM
2B

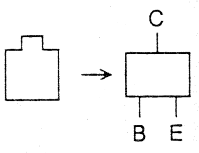
(TR318,322)

XP1213
(NPN WITH RESISTORS x 2)

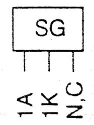

1C
2C
9L
1B
E.COM
2B

(TR321)

SINGLE CHIP
TRANSISTOR

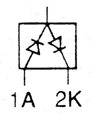


UIGWJ49



(D301 to 304)

DA204U
1K,2A



(D306)

ON

PRINCIPAL PARTS LOCATION

ICs

IC301	A2,3
IC303	A,B4,5
IC307	B,C3
IC308	A,B1,2
IC310	B,C1
IC311	A,B1
IC312	B1
IC313	B2
IC314	B2
IC315	C,D2
IC316	C2

DIODEs

D306	C2,3
D307	A6

INTEGRATED BLOCKs

IB301	B2
IB302	B2
IB303	B1,2
IB312	C1

INDUCTORs

L306	A4
L310	C4
L314	C1,2

TRANSISTORs

TR313	B1
TR318	D2
TR319	C4
TR320	C3
TR321	C4
TR322	C3
TR323	C3
TR324	D3
TR325	B1

VOLUME

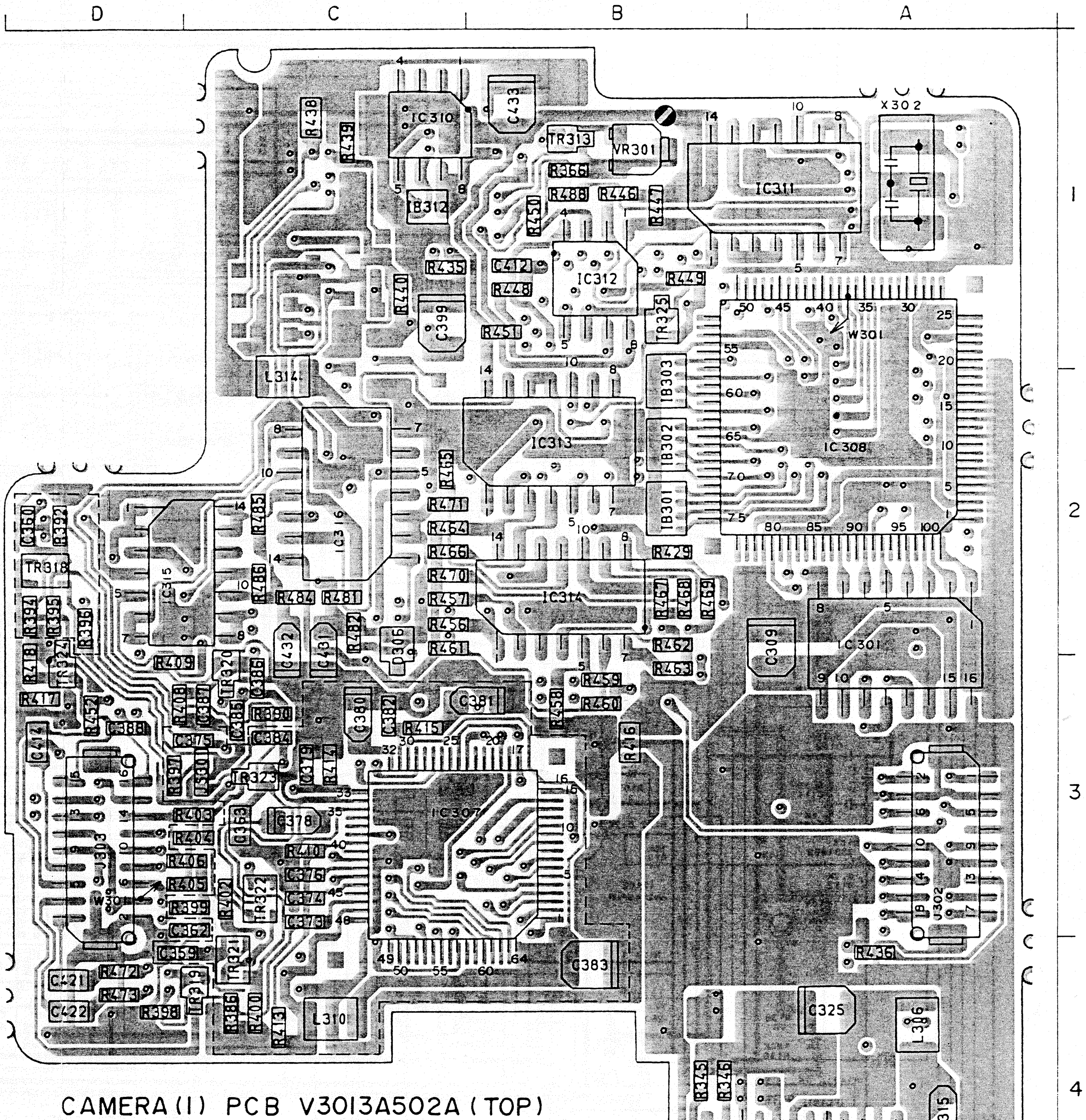
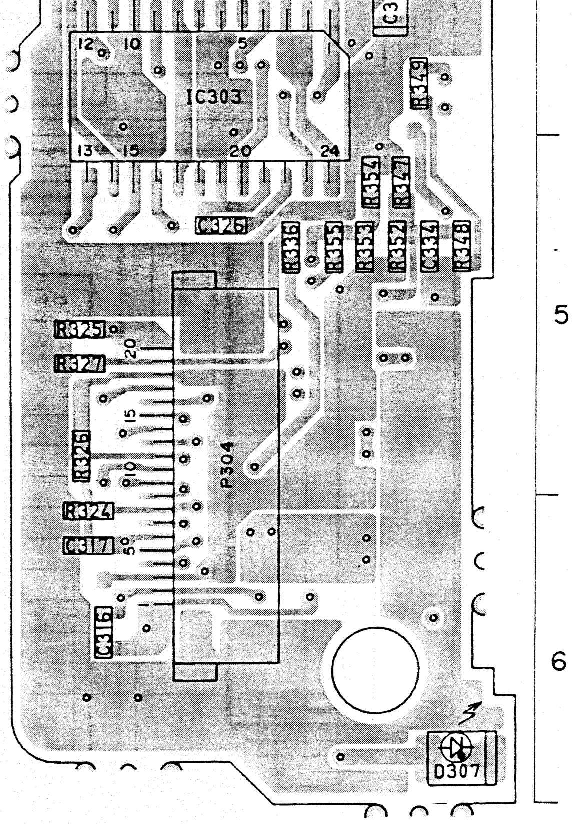
VR301	B1

X - TAL

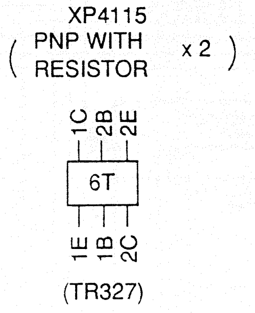
X302	A1

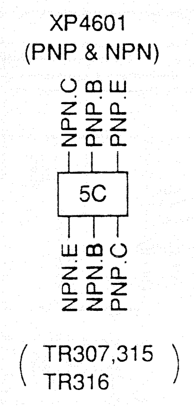
CONNECTORs

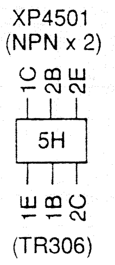
J302	A3
J303	D3
P304	A5,6

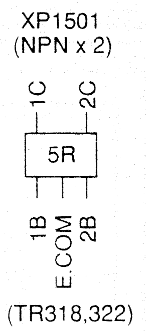


D
C
B
A
1
2
3
4
5
6
IC301
IC303
IC307
IC308
IC310
IC311
IC312
IC313
IC314
IC315
IC316
X302
VR301
J302
J303
P304
L306
L310
L314
D307

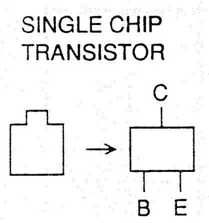
CAMERA (I) PCB V3013A502A (TOP)

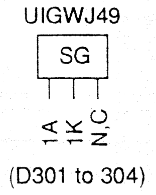

XP4115
(PNP WITH RESISTOR x 2)
1C
2B
2E
6T
1E
1B
2C
(TR327)

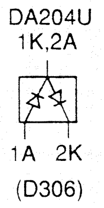

XP4601
(PNP & NPN)
NPN.C
PNP.B
PNP.E
5C
NPN.E
NPN.B
PNP.C
(TR307,315 TR316)

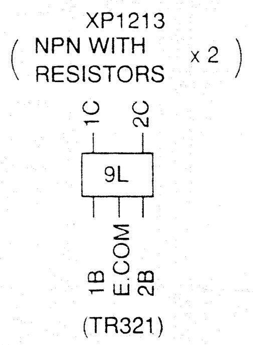

XP4501
(NPN x 2)
1C
2B
2E
5H
1E
1B
2C
(TR306)

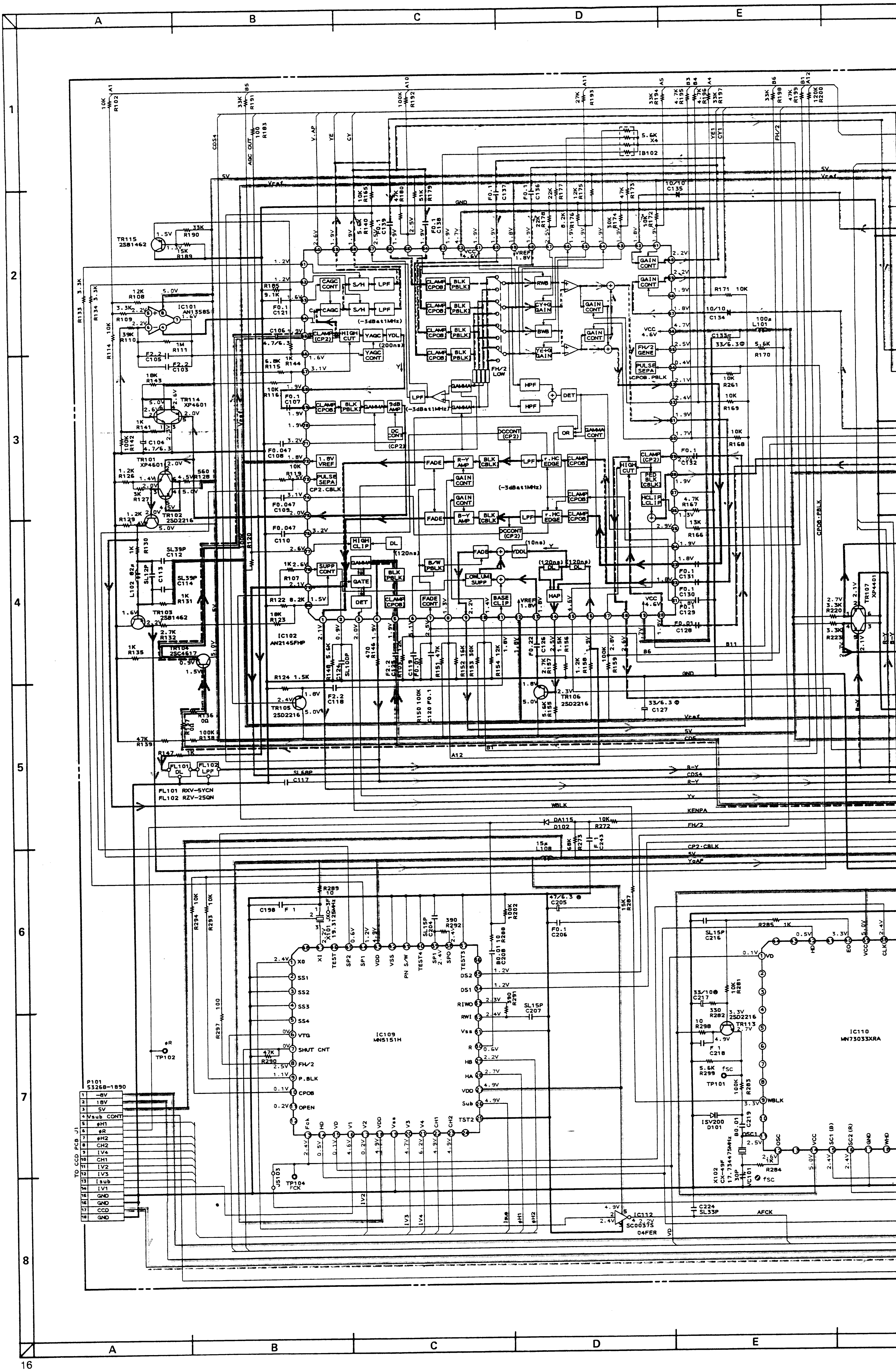

XP1501
(NPN x 2)
1C
2C
5R
1B
E.COM
2B
(TR318,322)

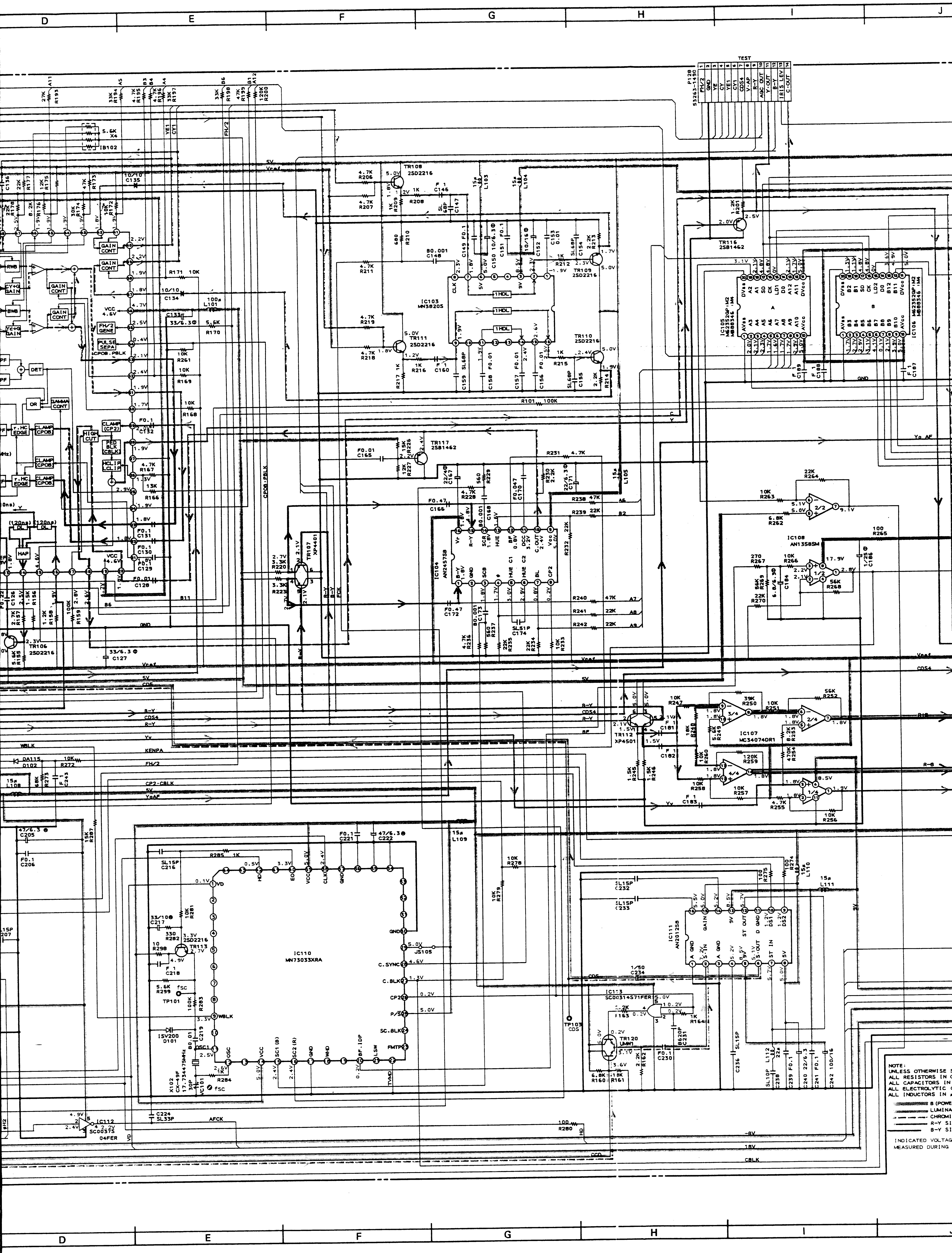

SINGLE CHIP TRANSISTOR
C
B
E


UIGWJ49
SG
1A
1K
N.C
(D301 to 304)


DA204U
1K,2A
1A
2K
(D306)


XP1213
(NPN WITH RESISTORS x 2)
1C
2C
9L
1B
E.COM
2B
(TR321)

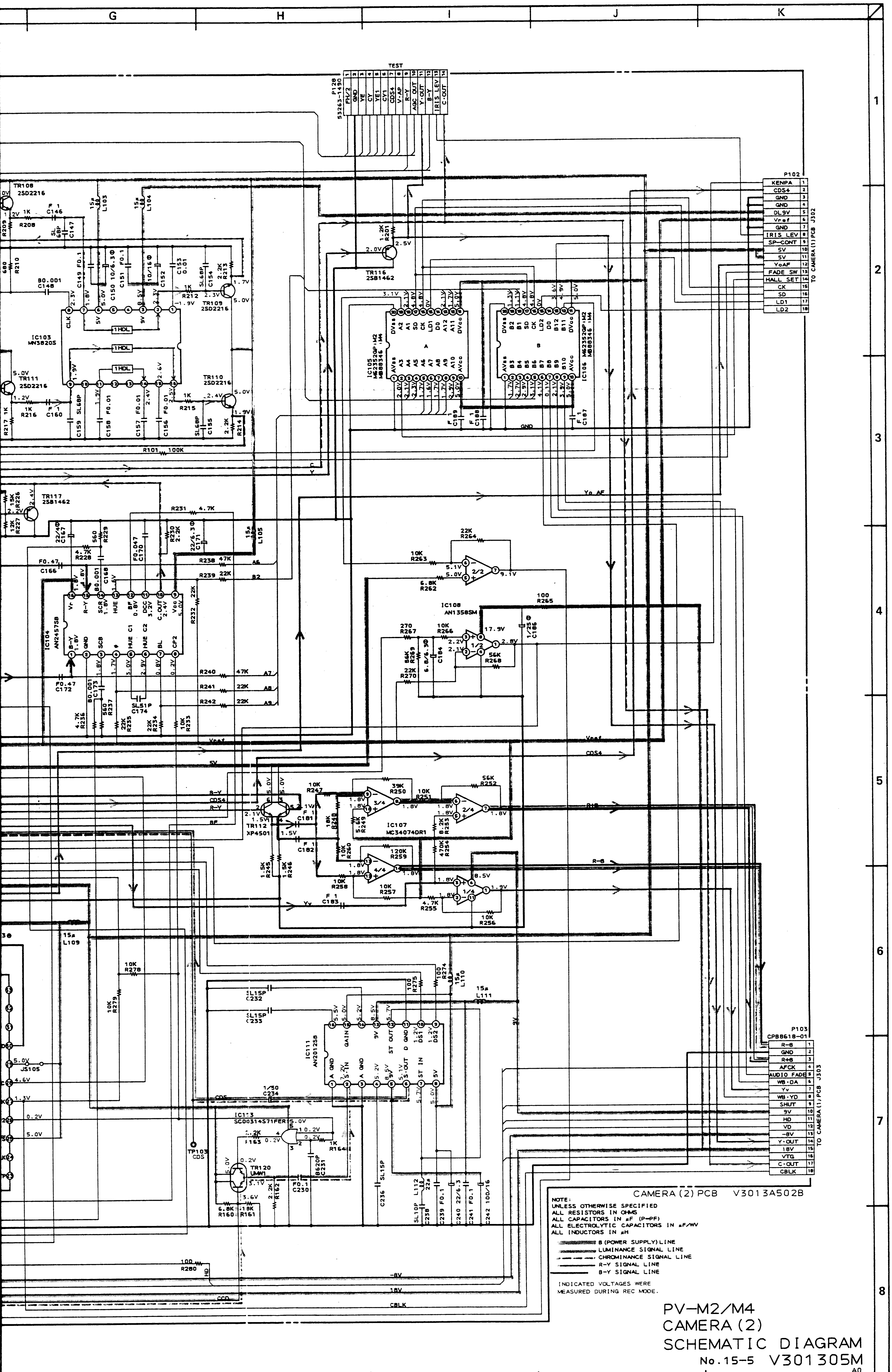

A
B
C
D
E
1
2
3
4
5
6
7
8
IC101
AN1358S
IC102
AN2145FHP
IC109
MN5151H
IC110
MN73033XRA
IC112
SC0037S
04FER
TR101
XP4601
TR102
2SD2216
TR103
2SB1462
TR104
2SC4617
TR105
2SD2216
TR106
2SD2216
TR107
XP4401
TR113
2SD2216
TR114
XP4601
TR115
2SB1462
FL101 RXV-5YCN
FL102 RZV-25QN
X101 JXO-3F 19.3125MHz
X102 CX-49F 17.734475MHz
D101 ISV200
D102 DA115
P101
53268-1890
TO CCD PCB J1
1 -8V
2 18V
3 5V
4 Vsub CONT
5 ϕH1
6 ϕR
7 ϕH2
8 CH2
9 IV4
10 CH1
11 IV2
12 IV3
13 Isub
14 IV1
15 GND
16 GND
17 CCD
18 GND
TP101
TP102
TP104
FCK
fSC
CAGC CONT
S/H
LPF
CAGC
CLAMP (CP2)
HIGH CUT
YAGC
YDL
YAGC CONT
CLAMP CPOB
BLK PBLK
GAMMA
9dB AMP
DC CONT
1.8V VREF
PULSE SEPA
FADE
R-Y AMP
B-Y AMP
GAIN CONT
BLK CBLK
r.HC EDGE
DCCONT (CP2)
OR
GAMMA CONT
HPF
DET
RWB
CY+G GAIN
BWB
YE+G GAIN
FH/2 GENE
PULSE SEPA
HIGH CUT
PED BLK (CBLK)
HCLIP LCLIP
HIGH CLIP
DL
SUPP CONT
GATE
B/W PBLK
FADE CONT
LOWLUM SUPP
BASE CLIP
YDDL
HAP
CDS
AGC OUT
V.AP
YE
CY
5V
Vref
GND
R-Y
B-Y
CDS4
Yv
KENPA
WBLK
FH/2
CP2·CBLK
YoAF
AFCK
CPOB·PBLK
(-3dBat1MHz)
(200ns)
(120ns)
(10ns)


D
E
F
G
H
I
J
TEST
P128
53263-1490
FH/2
GND
YE
CY
YE1
CY1
CDS4
V-AP
R-Y
AGC OUT
Y-OUT
B-Y
IRIS LEV
C-OUT
IB102
5.6K X4
TR108 2SD2216
TR111 2SD2216
TR109 2SD2216
TR110 2SD2216
TR116 2SB1462
TR117 2SB1462
TR106 2SD2216
TR107 XP4401
TR112 XP4501
TR113 2SD2216
TR120 UMW1
IC103 MN3820S
1HDL
IC105 M62352GP M2 MB88346
IC106 M62352GP M2 MB88346
IC104 AN2457SB
IC108 AN1358SM
IC107 MC34074DR1
IC110 MN73033XRA
IC111 AN20125B
IC113 SC00314S71FER
IC112 SC0037S 04FER
GAIN CONT
Y+G GAIN
Y+G GAIN
FH/2 GENE
PULSE SEPA
CPOB PBLK
DET
OR
GAMMA CONT
HC EDGE
CLAMP CPOB
CLAMP (CP2)
HIGH CUT
PED BLK (CBLK)
HCLIP LCLIP
(120ns) DL
HAP
VCC 4.6V
5V
Vref
GND
CDS
CDS4
R-Y
B-Y
Yv
Yo AF
KENPA
FH/2
CP2·CBLK
WBLK
AFCK
CBLK
CCD
18V
-8V
JS105
TP101 fSC
TP103 CDS
VC101 fSC
X102 CX-49F 17.734475MHz
ISV200 D101
DA115 D102
L101
L103
L104
L105
L108
L109
L110
L111
L112
C.SYNC
C.BLK
CP2
P/S
SC.BLK
FMTP
OSC
SC1 (B)
SC2 (R)
WHD
BF.IDP
LSW
TYMD
VD
HD
EO
CLK
WBLK

NOTE:
UNLESS OTHERWISE S
ALL RESISTORS IN O
ALL CAPACITORS IN
ALL ELECTROLYTIC C
ALL INDUCTORS IN

B (POWE
LUMINA
CHROMI
R-Y SI
B-Y SI

INDICATED VOLTAG
MEASURED DURING


G
H
I
J
K
1
2
3
4
5
6
7
8
TEST
P128
53263-1490
FH/2
GND
YE
CY
YE1
CY1
CDS4
V·AP
R-Y
AGC OUT
Y·OUT
B-Y
IRIS LEV
C·OUT
P102
KENPA
CDS4
GND
GND
DL9V
Vref
GND
IRIS LEV
SP-CONT
5V
5V
YoAF
FADE SW
HALL SET
CK
SD
LD1
LD2
TO CAMERA (1) PCB J302
TR108 2SD2216
TR109 2SD2216
TR110 2SD2216
TR111 2SD2216
IC103 MN3820S
1HDL
TR116 2SB1462
TR117 2SB1462
IC105 M62352GP/M2 MB88346 1M4
IC106 M62352GP/M2 MB88346 1M4
IC104 AN2457SB
IC108 AN1358SM
IC107 MC34074DR1
TR112 XP4501
IC111 AN2012S
IC113 SC00314S71FER
TR120 UMW1
TP103 CDS
JS105
R101 100K
Vref
CDS4
5V
R-Y
B-Y
Yv
Yo AF
R+B
R-B
-8V
18V
CBLK
CCD
HD
R280 100
P103
CP88618-01
R-B
GND
R+B
AFCK
AUDIO FADE
WB·DA
Yv
WB·YD
SHUT
9V
HD
VD
-8V
Y·OUT
18V
VTG
C·OUT
CBLK
TO CAMERA (1) PCB J303

CAMERA (2) PCB V3013A502B

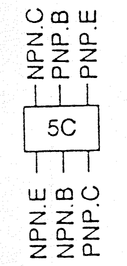
NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN µF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN µF/WV
ALL INDUCTORS IN µH

B (POWER SUPPLY) LINE
LUMINANCE SIGNAL LINE
CHROMINANCE SIGNAL LINE
R-Y SIGNAL LINE
B-Y SIGNAL LINE

INDICATED VOLTAGES WERE
MEASURED DURING REC MODE.

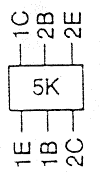
PV-M2/M4
CAMERA (2)
SCHEMATIC DIAGRAM
No.15-5 V301305M
A0

XP4601
(PNP & NPN)


NPN.C
PNP.B
PNP.E
5C
NPN.E
NPN.B
PNP.C

(TR101,TR114)

XP4401
(PNP x 2)


1C
2B
2E
5K
1E
1B
2C

(TR107)

PRINCIPAL PARTS LOCATION

ICs

IC101	B,C3
IC103	C3
IC106	C1
IC108	C1
IC109	A2
IC110	A,B3
IC111	B1,2
IC112	A2

DIODE

D102	A2

INDUCTORs

L101	C3
L105	C1
L110	A1
L111	A2
L112	A1,2

CONNECTORs

P101	A1
P102	C2
P103	A2

INTEGRATED BLOCK

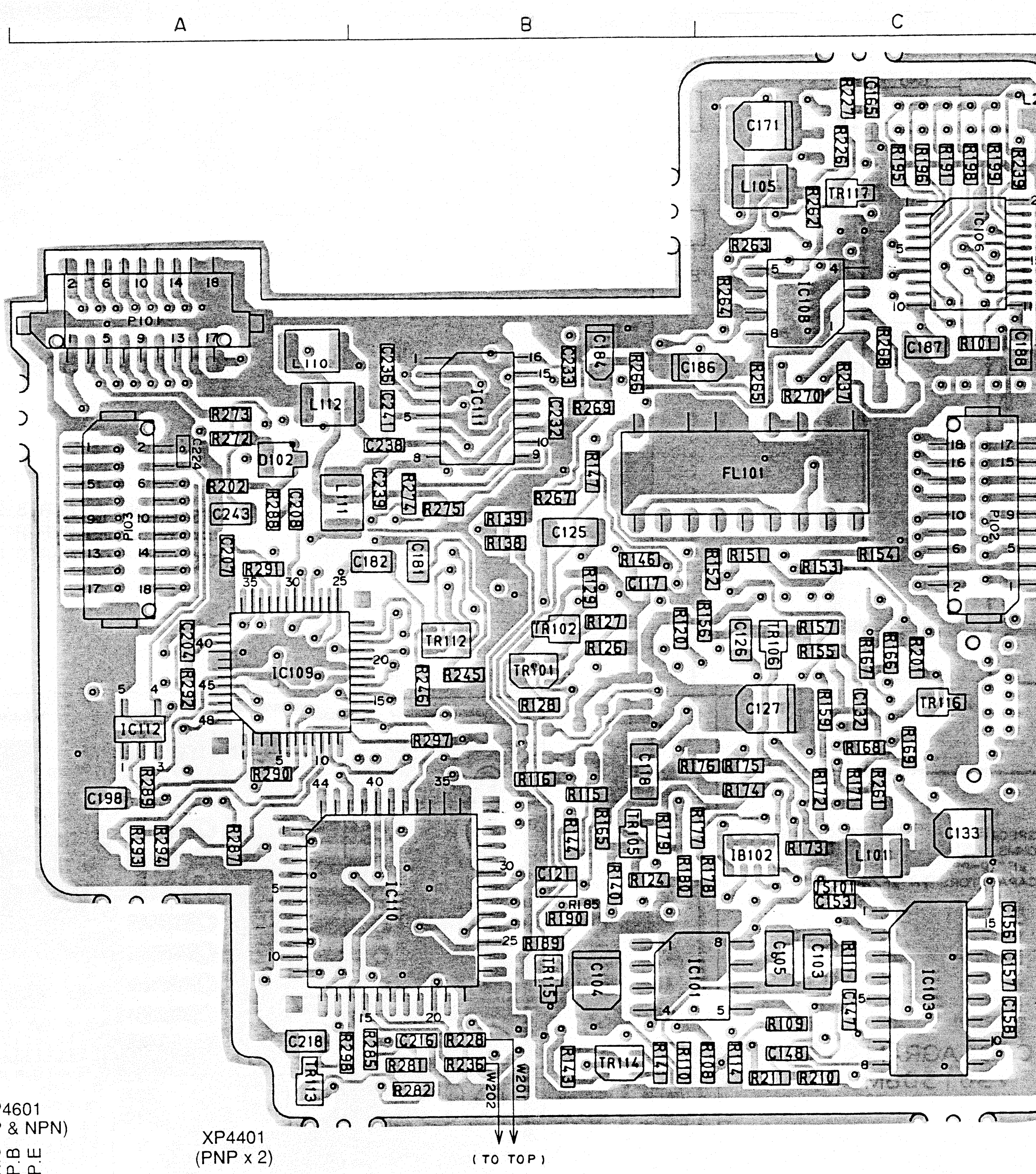
IB102	C3

TRANSISTORs

TR101	B2
TR102	B2
TR105	B2
TR106	C2
TR112	B2
TR113	A3
TR114	B3
TR115	B3
TR116	C2
TR117	C1

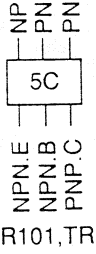
FILTER

FL101	B,C2


A
B
C
C171
L105
TR117
R263
R264
IC108
IC106
C186
R265
R270
C187
R101
C188
P101
L110
L112
L111
D102
R273
R272
R202
C243
C238
IC111
R269
R267
R275
R139
R138
C125
FL101
P103
P102
C182
C181
R291
IC109
TR112
R245
TR102
R127
R126
TR101
R128
R146
C117
R151
R153
R154
R157
R155
TR106
C126
C127
TR116
IC112
R297
R290
C198
IC110
R116
R115
C118
R176
R175
R174
R173
IB102
L101
C133
C121
R124
R190
R189
TR115
C104
IC101
C105
C103
IC103
R109
C148
R211
R210
C218
R228
C216
R281
R282
R236
TR113
TR114
W202
W201
(TO TOP)

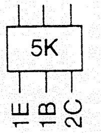
CAMERA (2) PCB V3013A502B (BOTTOM)

XP4601
(PNP & NPN)

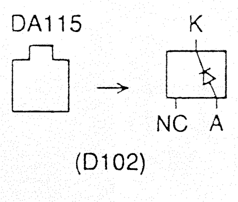

NPN.C
PNP.B
PNP.E
5C
NPN.E
NPN.B
PNP.C

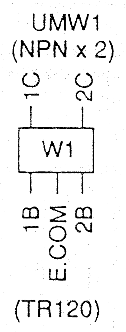
(TR101,TR114)

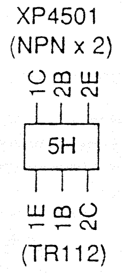
XP4401
(PNP x 2)

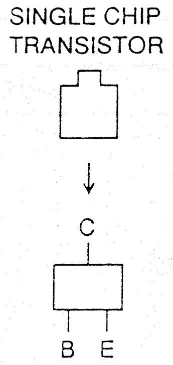

1C
2B
2E
5K
1E
1B
2C

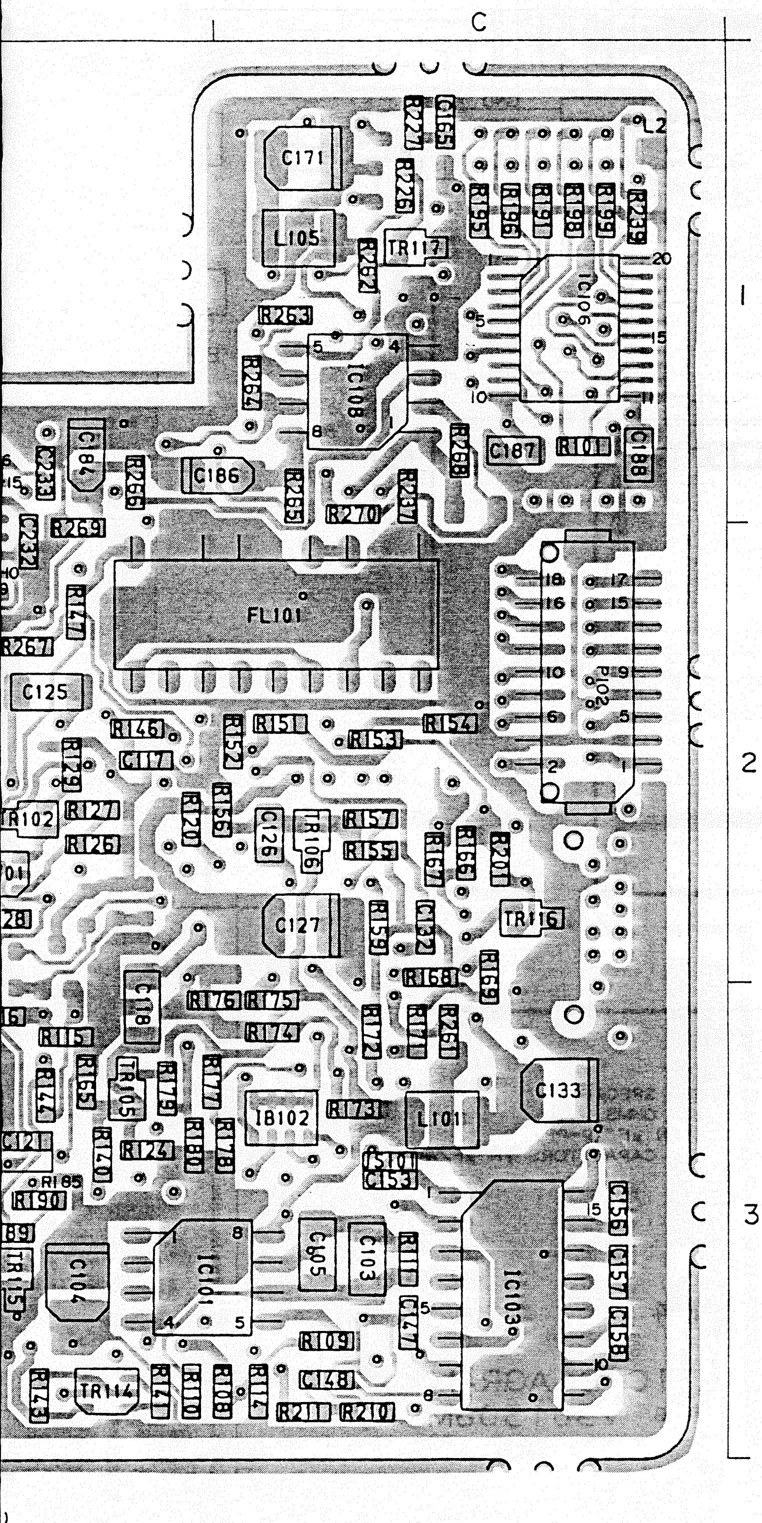
(TR107)


DA115
K
NC
A
(D102)

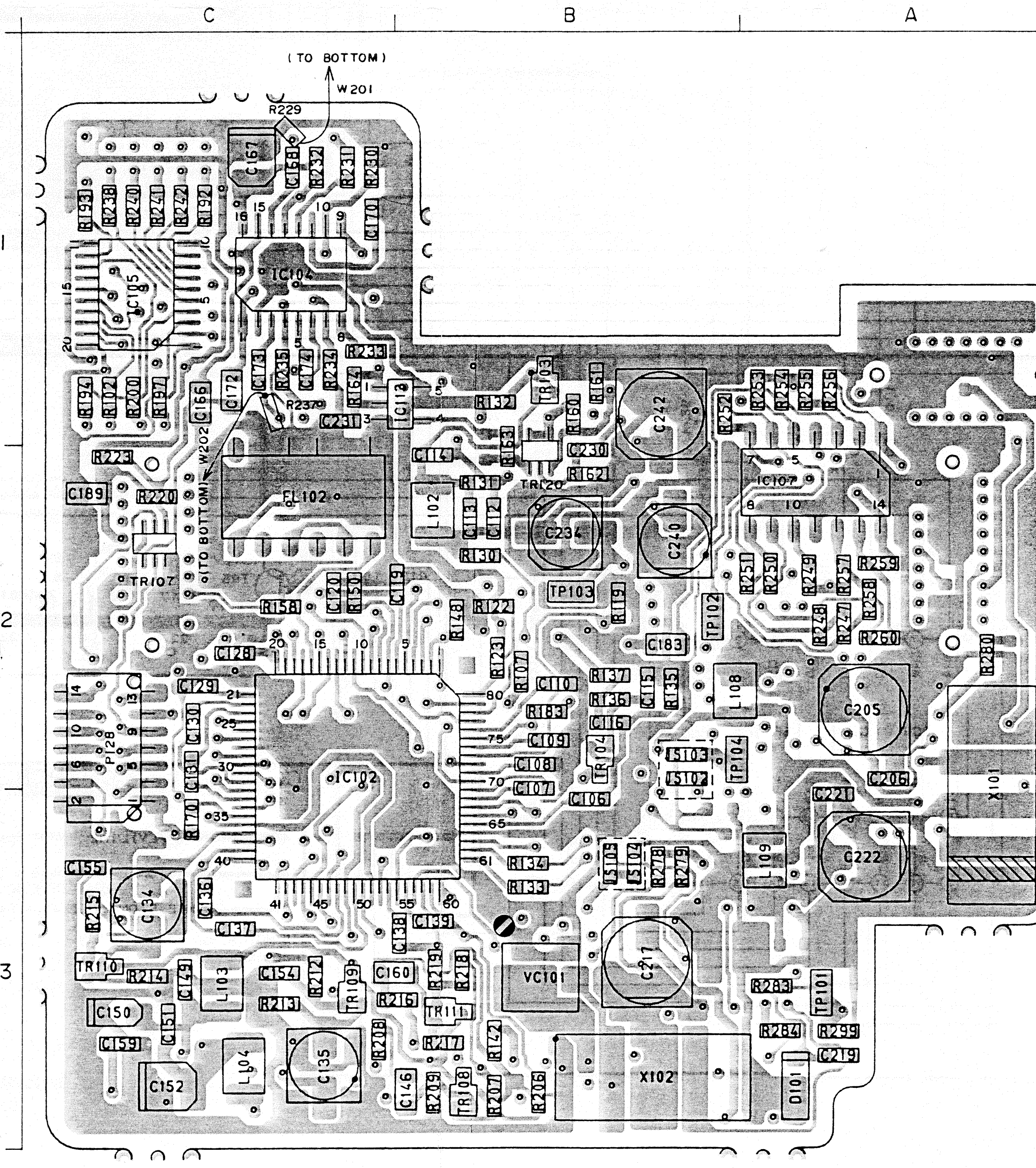

UMW1
(NPN x 2)
1C
2C
W1
1B
E.COM
2B
(TR120)


XP4501
(NPN x 2)
1C
2B
2E
5H
1E
1B
2C
(TR112)


SINGLE CHIP
TRANSISTOR
C
B
E

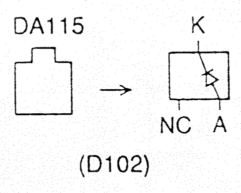

C
1
2
3
C171
L105
TR117
R263
IC108
IC106
R264
C184
C186
C187
R101
C188
R269
R270
FL101
P102
R267
C125
R146
C117
R151
R153
R154
R129
R127
R126
R120
TR106
R157
R155
C127
TR116
R168
R176
R175
R174
C118
R115
TR105
IB102
R173
L101
C133
R124
R140
C121
R190
IC101
C105
C103
IC103
C104
TR114
R109
C148
R211
R210

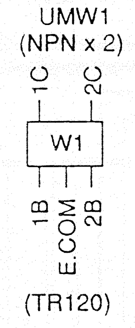
CB V3013A502B (BOTTOM)

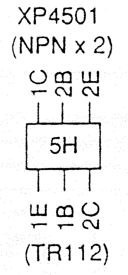

C
B
A
1
2
3
(TO BOTTOM)
W201
R229
C167
IC105
IC104
R233
C231
R237
W202
(TO BOTTOM)
R223
C189
R220
TR107
FL102
L102
IC112
R132
TR103
R160
C242
C230
TR120
R162
R131
R130
C234
C240
TP103
IC107
R158
C128
C129
P128
C130
IC102
R122
C110
R137
R136
C116
R183
C109
C108
C107
C106
R104
TP102
C183
L108
TP104
C205
C206
C221
X101
L109
C222
R134
R133
C155
C134
C136
C137
TR110
R214
C149
L103
C154
R212
TR109
C160
R216
R213
TR111
VC101
C217
C150
C151
C159
C152
L104
C135
R208
R217
R142
C146
R209
TR108
R207
R206
X102
R283
TP101
R284
R299
C219
D101

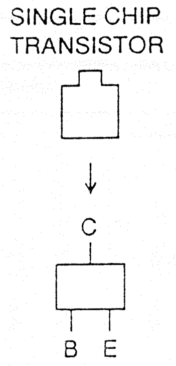
CAMERA (2) PCB V3013A502B (TOP)

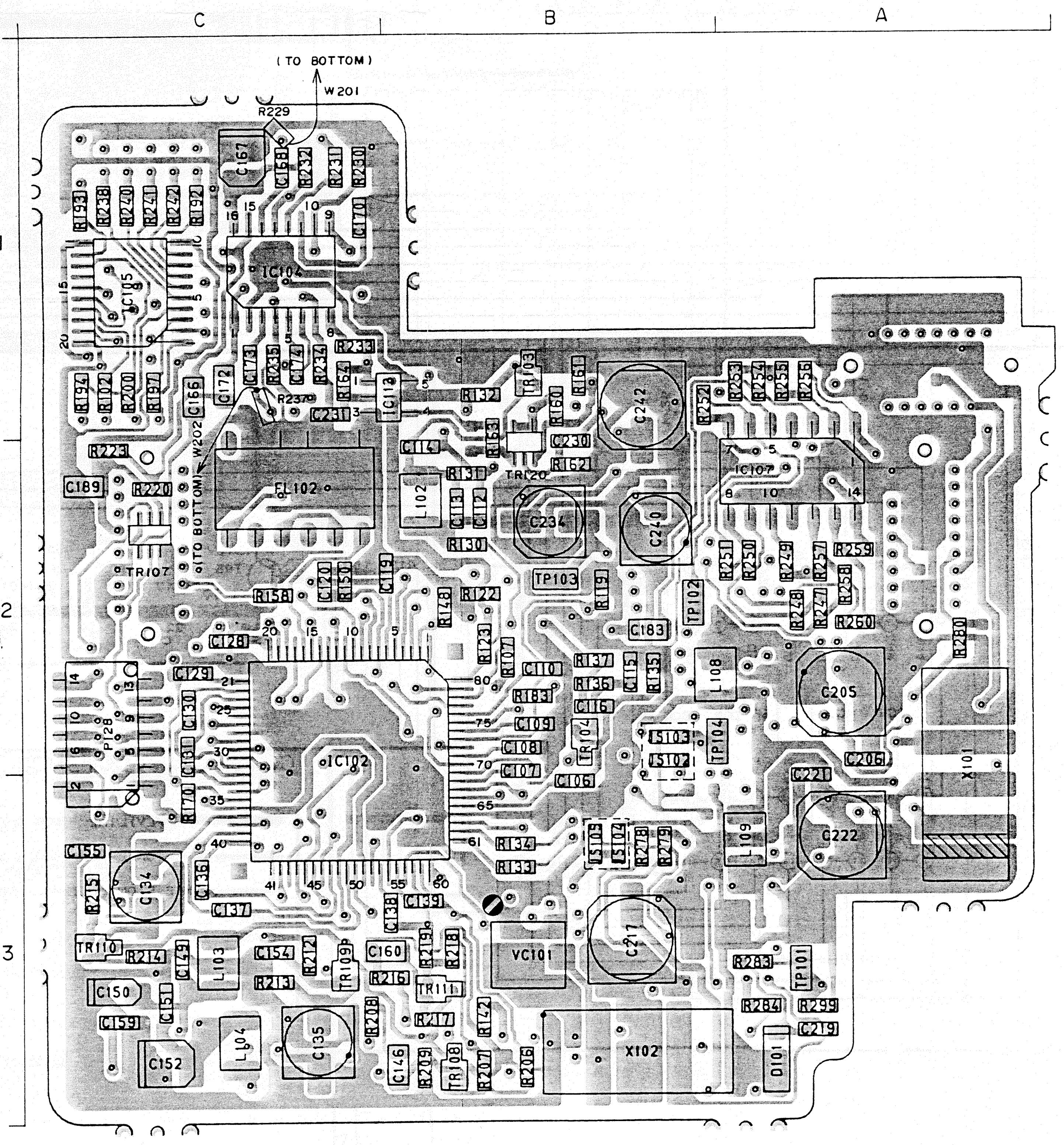
NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER.
REFER TO SCHEMATIC DIAGRAMS FOR PERTAINING
PARTS INFORMATION.


DA115
K
NC
A
(D102)


UMW1
(NPN x 2)
1C
2C
W1
1B
E.COM
2B
(TR120)


XP4501
(NPN x 2)
1C
2B
2E
5H
1E
1B
2C
(TR112)


SINGLE CHIP
TRANSISTOR
C
B
E


C
B
A
1
2
3
(TO BOTTOM)
W201
W202
(TO BOTTOM)
IC102
IC104
IC105
IC107
FL102
P128
VC101
X101
X102
L102
L103
L104
L108
L109
D101
TP101
TP102
TP103
TP104
TR107
TR109
TR110
TR111
TR120

CAMERA (2) PCB V3013A502B (TOP)

NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER.
REFER TO SCHEMATIC DIAGRAMS FOR PERTAINING
PARTS INFORMATION.

PRINCIPAL PARTS LOCATION

ICs

IC102	B,C2,3
IC104	C1
IC105	C1
IC107	A2
IC113	B,C1

DIODE

D101	A3

INDUCTORs

L102	B2
L103	C3
L104	C3
L108	A,B2
L109	A3

CONNECTORs

P128	C2,3

TEST POINTs

TP101	A3
TP102	B2
TP103	B2
TP104	A,B3

TRANSISTORs

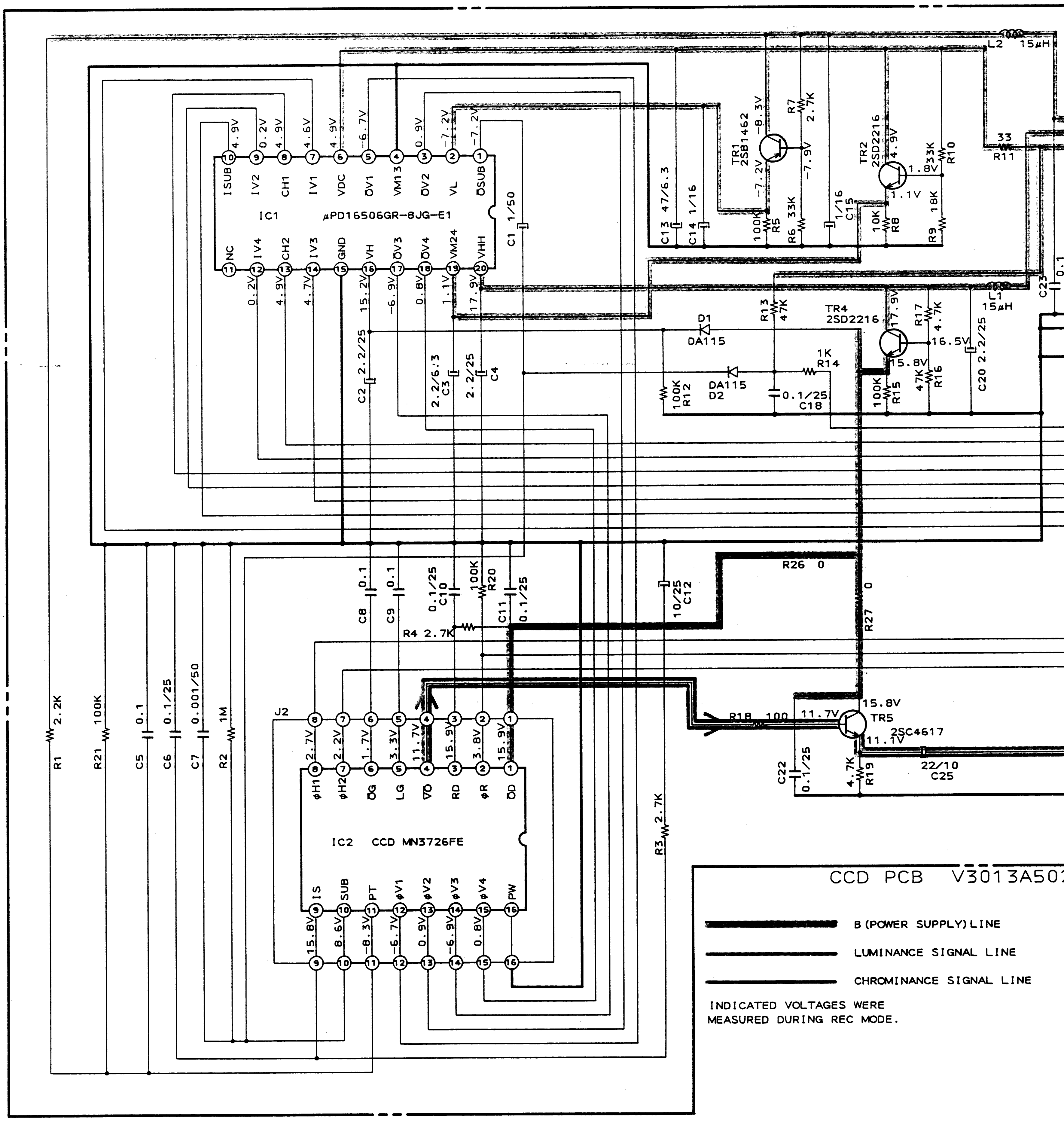
TR103	B1
TR104	B2
TR107	C2
TR108	B3
TR109	C3
TR110	C3
TR111	B3
TR120	B2

X - TALs

X101	A2,3
X102	B3

FILTER

FL102	C2


IC1 µPD16506GR-8JG-E1
ISUB
IV2
CH1
IV1
VDC
ØV1
VM13
ØV2
VL
ØSUB
NC
IV4
CH2
IV3
GND
VH
ØV3
ØV4
VM24
VHH
4.9V
0.2V
4.9V
4.6V
4.9V
-6.7V
0.9V
-7.2V
-7.2V
0.2V
4.9V
4.7V
15.2V
-6.9V
0.8V
1.1V
17.9V
C1 1/50
C2 2.2/25
C3 2.2/6.3
C4 2.2/25
TR1 2SB1462
-8.3V
-7.2V
-7.9V
R7 2.7K
R5 100K
R6 33K
C13 47/6.3
C14 1/16
C15 1/16
TR2 2SD2216
4.9V
1.8V
1.1V
R8 10K
R10 33K
R9 18K
R11 33
L2 15µH
L1 15µH
C23
D1 DA115
D2 DA115
R13 47K
R14 1K
R12 100K
C18 0.1/25
TR4 2SD2216
17.9V
16.5V
15.8V
R17 4.7K
R16 47K
R15 100K
C20 2.2/25
R26 0
R27 0
C12 10/25
C8 0.1
C9 0.1
C10 0.1/25
R20 100K
C11 0.1/25
R4 2.7K
J2
R18 100
11.7V
TR5 2SC4617
15.8V
11.1V
C22 0.1/25
R19 4.7K
C25 22/10
R1 2.2K
R21 100K
C5 0.1
C6 0.1/25
C7 0.001/50
R2 1M
R3 2.7K
2.7V
2.2V
1.7V
3.3V
11.7V
15.9V
3.8V
15.9V
ØH1
ØH2
ØG
LG
VO
RD
ØR
ØD
IC2 CCD MN3726FE
IS
SUB
PT
ØV1
ØV2
ØV3
ØV4
PW
15.8V
8.6V
-8.3V
-6.7V
0.9V
-6.9V
0.8V

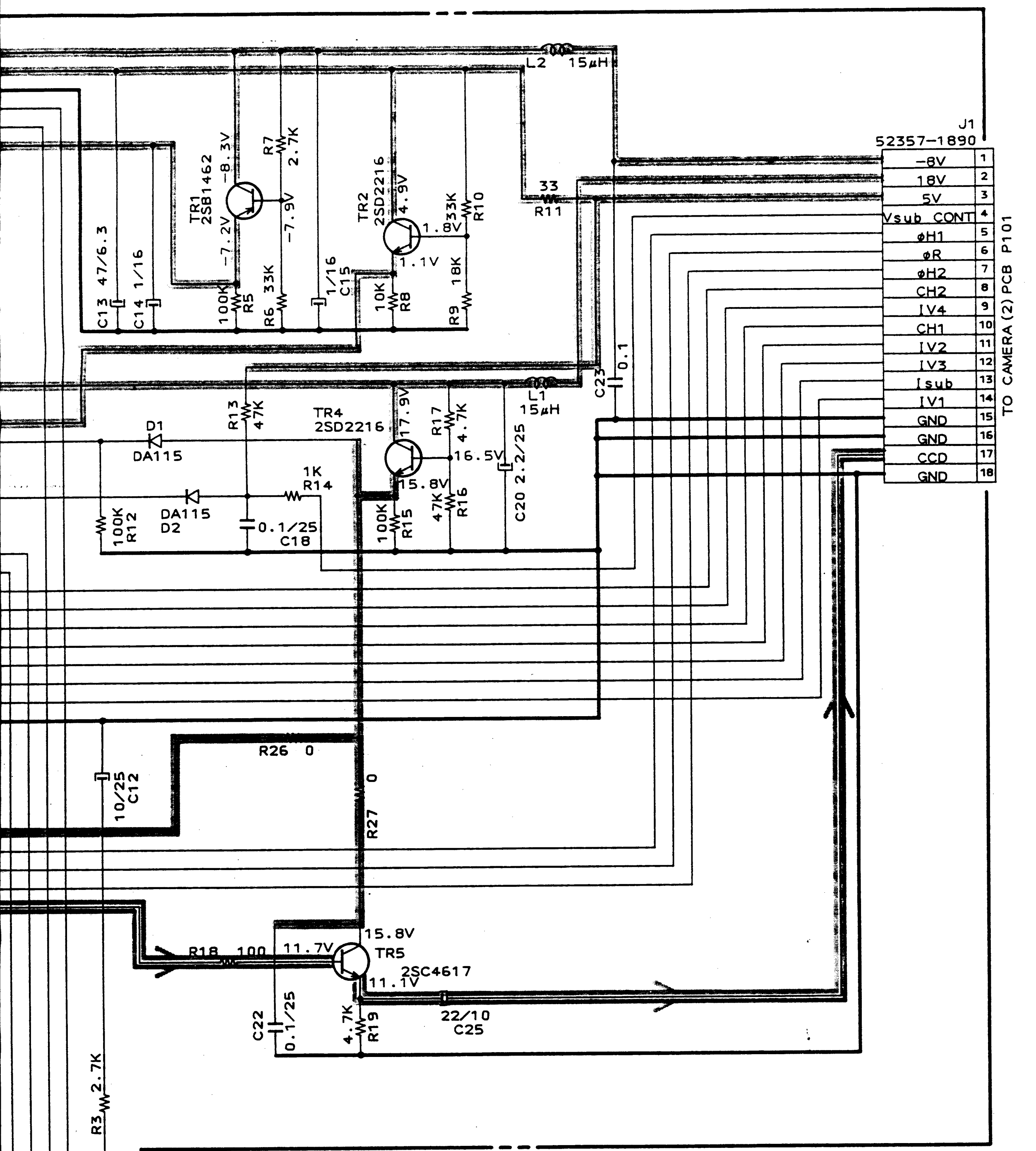
CCD PCB V3013A50

B (POWER SUPPLY) LINE

LUMINANCE SIGNAL LINE

CHROMINANCE SIGNAL LINE

INDICATED VOLTAGES WERE
MEASURED DURING REC MODE.


L2 15μH
J1
52357-1890
-8V 1
18V 2
5V 3
Vsub CONT 4
φH1 5
φR 6
φH2 7
CH2 8
IV4 9
CH1 10
IV2 11
IV3 12
Isub 13
IV1 14
GND 15
GND 16
CCD 17
GND 18
TO CAMERA (2) PCB P101
TR1 2SB1462
-8.3V
-7.2V
-7.9V
R7 2.7K
TR2 2SD2216
4.9V
1.8V
1.1V
R10 33K
R9 18K
R8 10K
R5 100K
R6 33K
C13 47/6.3
C14 1/16
C15 1/16
33 R11
C23 0.1
L1 15μH
TR4 2SD2216
17.9V
16.5V
15.8V
R13 47K
R17 4.7K
R16 47K
R15 100K
C20 2.2/25
D1 DA115
D2 DA115
R14 1K
R12 100K
C18 0.1/25
R26 0
R27 0
C12 10/25
R18 100
11.7V
15.8V
TR5 2SC4617
11.1V
C22 0.1/25
R19 4.7K
C25 22/10
R3 2.7K

CCD PCB V3013A502C

B (POWER SUPPLY) LINE

LUMINANCE SIGNAL LINE

CHROMINANCE SIGNAL LINE

INDICATED VOLTAGES WERE
MEASURED DURING REC MODE.

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV

PV-M2/M4
CCD
SCHEMATIC DIAGRAM
No.15-6 V301306M
A2

PRINCIPAL PARTS LOCATION

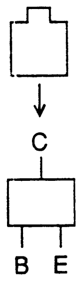
DIODEs

D1	B3
D2	A3

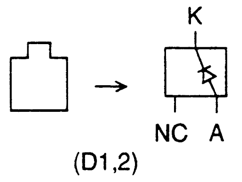
TRANSISTORs

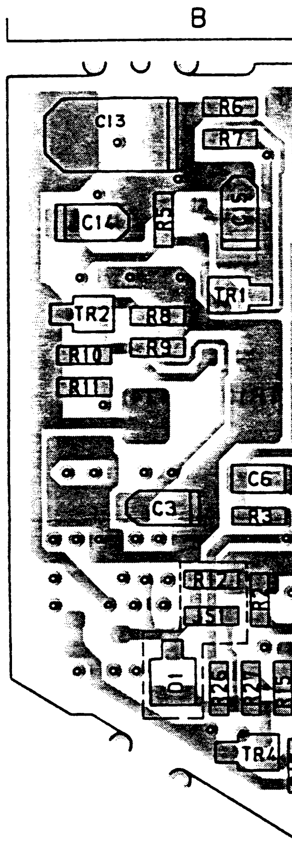
TR1	B2
TR2	B2
TR4	B3

SINGLE CHIP
TRANSISTOR



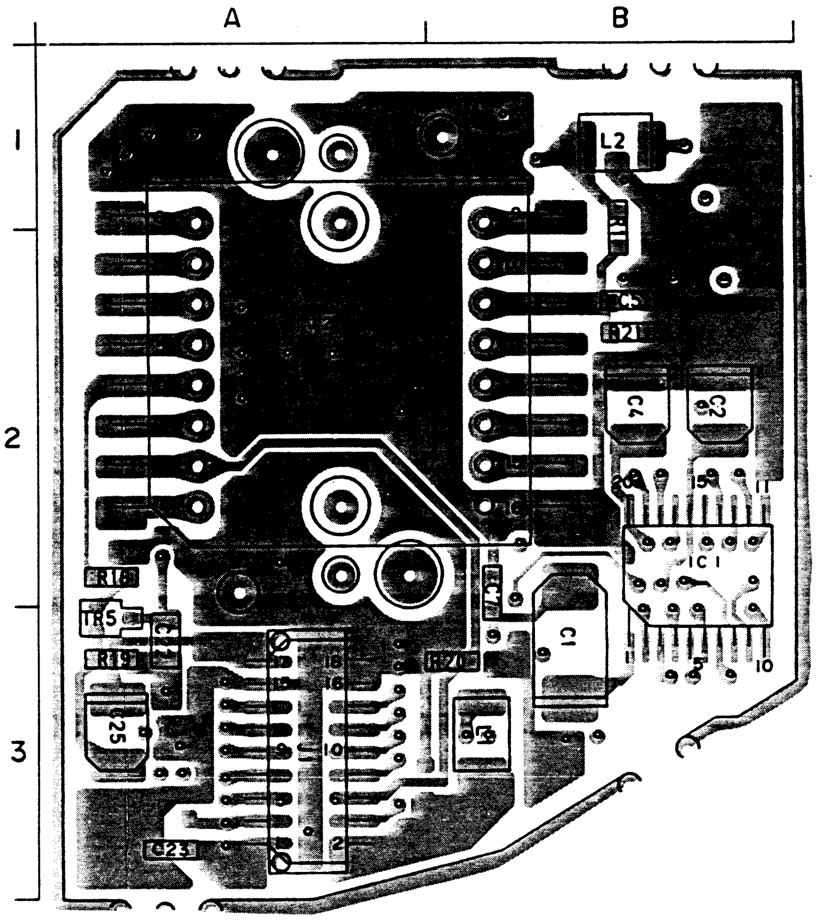
DA115



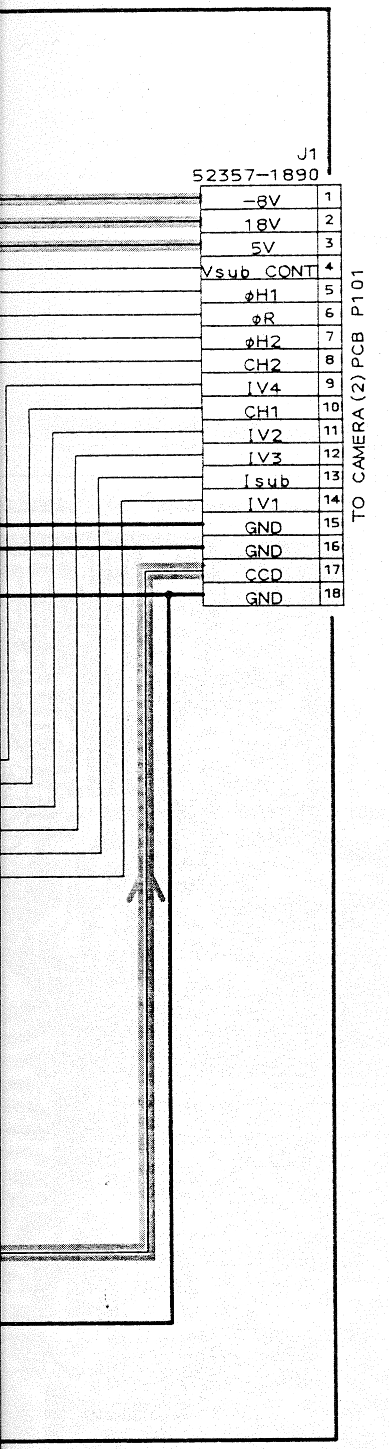

B
C13
R6
R7
C14
TR2
R8
TR1
R10
R9
R11
C6
C3
R3
D1
TR4

CCD PCB

NOTE : PARTS DIFFER
REFER TO SCH
PARTS INFORM


A
B
1
2
3
L2
R21
C2
C3
IC1
C1
R16
TR5
R19
C25
R20
C23
10

CCD PCB V3013A502C (BOTTOM)


J1
52357-1890
-8V 1
18V 2
5V 3
Vsub CONT 4
φH1 5
φR 6
φH2 7
CH2 8
IV4 9
CH1 10
IV2 11
IV3 12
Isub 13
IV1 14
GND 15
GND 16
CCD 17
GND 18
TO CAMERA (2) PCB P101

THERWISE SPECIFIED
STORS IN OHMS
CITORS IN μF (P=PF)
TROLYTIC CAPACITORS IN μF/WV

M2/M4

EMATIC DIAGRAM
No.15-6 V301306M
A2

PRINCIPAL PARTS LOCATION

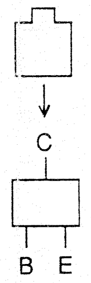
DIODEs

D1	B3
D2	A3

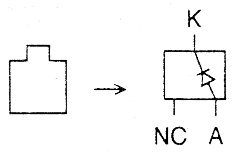
TRANSISTORs

TR1	B2
TR2	B2
TR4	B3

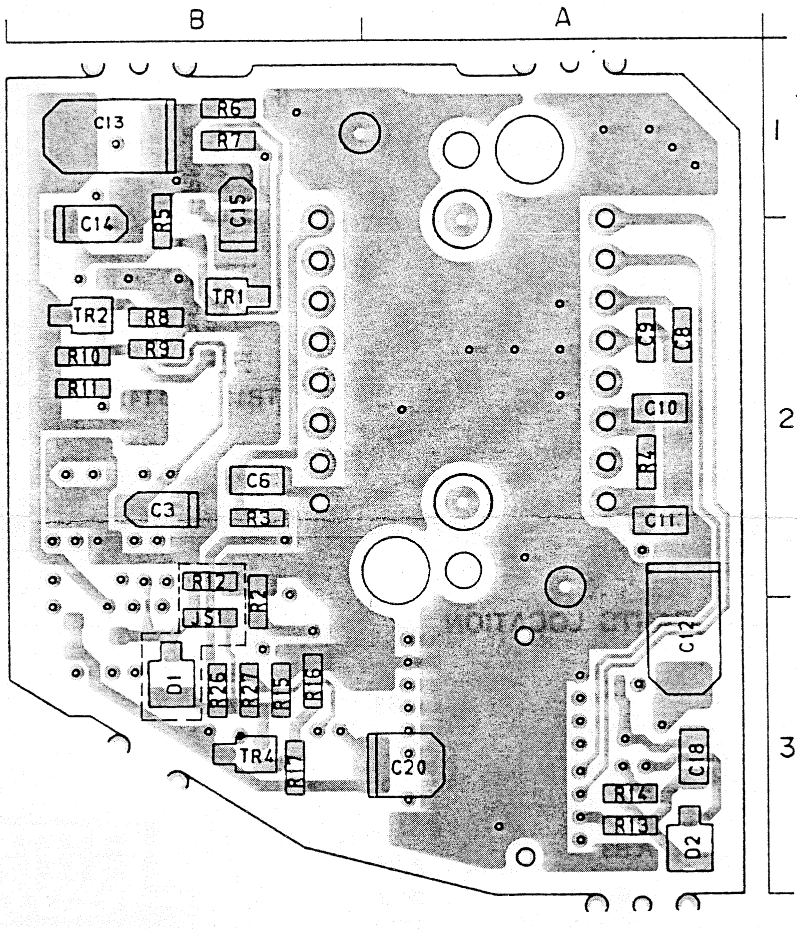
SINGLE CHIP TRANSISTOR



DA115

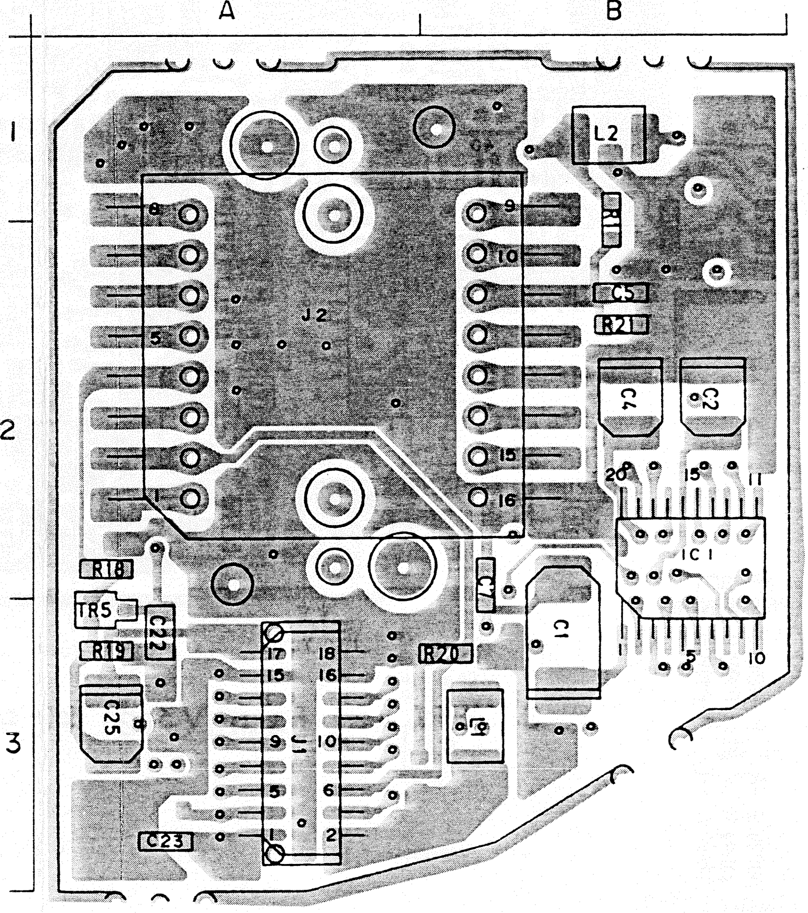


(D1,2)


B
A
1
2
3
C13
R6
R7
C14
R5
C15
TR1
TR2
R8
R9
R10
R11
C9
C8
C10
R4
C6
C3
R3
C11
R12
JS1
R2
C12
D1
R26
R27
R15
R16
TR4
R17
C20
C18
R14
R13
D2

CCD PCB V3013A502C (TOP)

NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER.
REFER TO SCHEMATIC DIAGRAMS FOR PERTINENT PARTS INFORMATION.


A
B
1
2
3
L2
R1
J2
C5
R21
C4
C2
20
15
IC1
10
C7
C1
R18
TR5
C22
R19
R20
C25
J1
L1
C23
1
5
9
10
15
16
17
18
2
6

CCD PCB V3013A502C (BOTTOM)

PRINCIPAL PARTS LOCATION

IC

IC1	B2,3

CONNECTORs

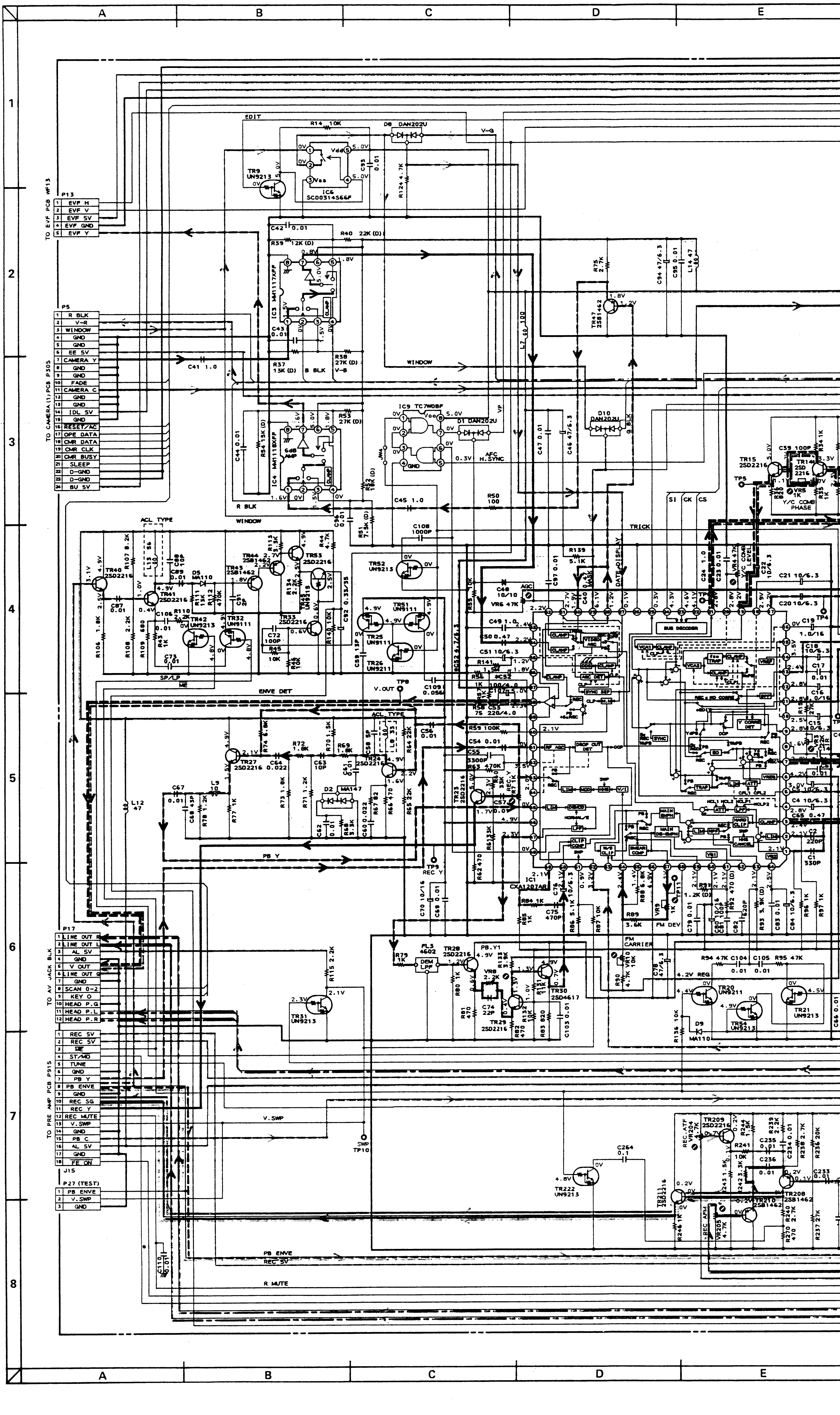
J1	A3
J2	A2

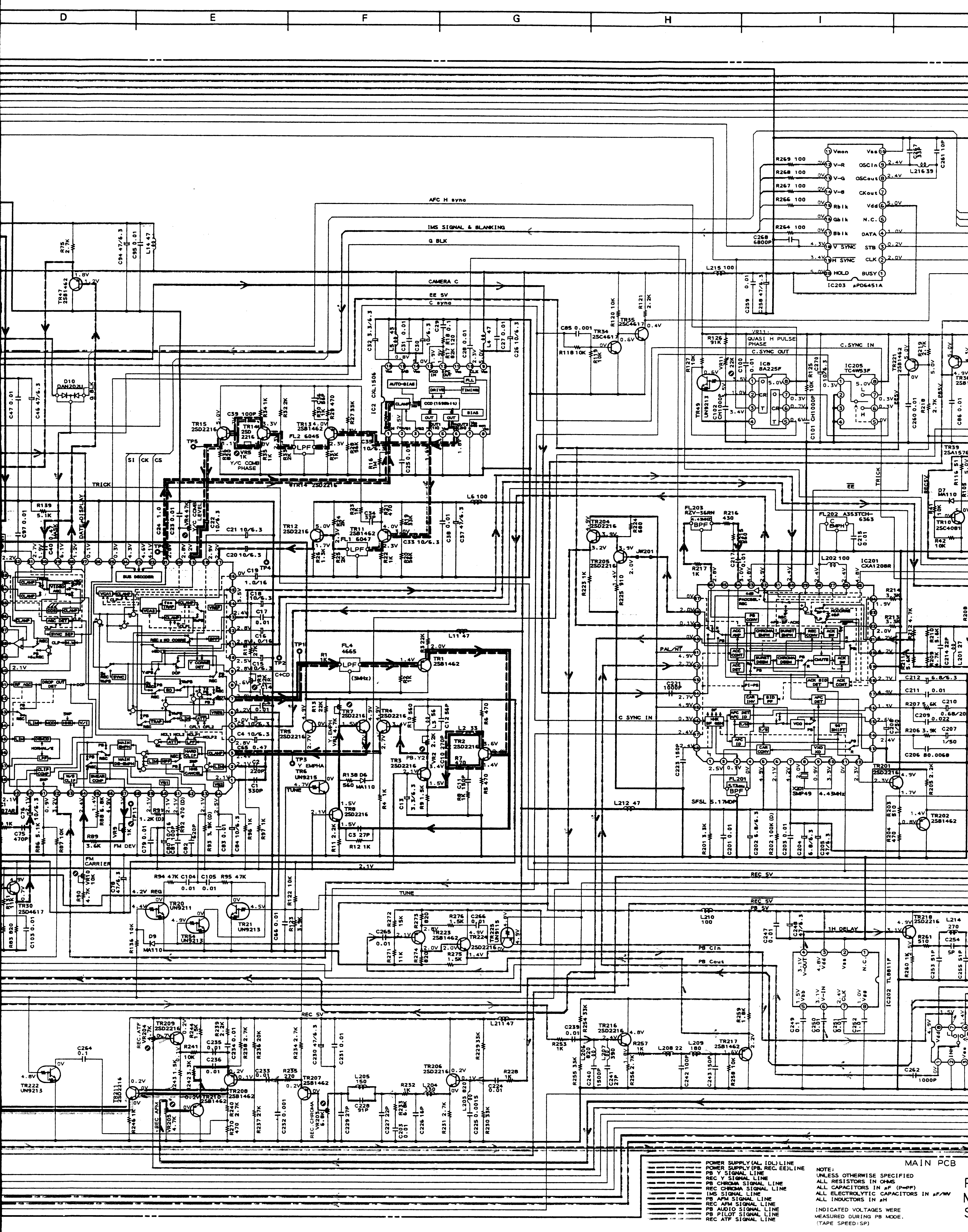
INDUCTORs

L1	B3
L2	B1

TRANSISTOR

TR5	A3


A
B
C
D
E
1
2
3
4
5
6
7
8
TO EVF PCB WF13
P13
1 EVF H
2 EVF V
3 EVF 5V
4 EVF GND
5 EVF Y
TO CAMERA (1) PCB P305
P5
1 R BLK
2 V-R
3 WINDOW
4 GND
5 GND
6 EE 5V
7 CAMERA Y
8 GND
9 GND
10 FADE
11 CAMERA C
12 GND
13 GND
14 IDL 5V
15 GND
16 RESET/AC
17 OPE DATA
18 CMR DATA
19 CMR CLK
20 CMR BUSY
21 SLEEP
22 D-GND
23 D-GND
24 BU 5V
TO AV JACK BLK
P17
1 LINE OUT R
2 LINE OUT L
3 AL 5V
4 GND
5 V OUT
6 LINE OUT G
7 GND
8 SCAN 0-2
9 KEY O
10 HEAD P.G
11 HEAD P.L
12 HEAD P.R
TO PRE AMP PCB P915
1 REC 5V
2 REC 5V
3 ME
4 ST/MO
5 TUNE
6 GND
7 PB Y
8 PB ENVE
9 GND
10 REC SG
11 REC Y
12 REC MUTE
13 V.SWP
14 GND
15 PB C
16 AL 5V
17 GND
18 FE ON
J15
P27 (TEST)
1 PB ENVE
2 V.SWP
3 GND
EDIT
R14 10K
D8 DAN202U
V-G
TR9 UN9213
IC6 SC00314S66F
C93 0.01
R124 4.7K
C42 0.01
R39 12K (D)
R40 22K (D)
IC3 MA1117XFF
C43 0.01
R37 13K (D)
B BLK
R38 27K (D)
V-B
C41 1.0
WINDOW
IC9 TC7W08F
D1 DAN202U
AFC H.SYNC
R53 27K (D)
IC4 MA1118XFF
6dB AMP
C44 0.01
R54 15K (D)
R52 18K (D)
R BLK
WINDOW
C45 1.0
R50 100
C108 1000P
R51 7.5K (D)
R75 2.7K
TR47 2SB1462
C94 47/6.3
C95 0.01
L14 47
L7 60 100
C47 0.01
C46 47/6.3
D10 DAN202U
ACL TYPE
TR40 2SD2216
TR41 2SD2216
TR42 UN9213
TR32 UN9111
TR43 2SB1462
TR44 2SB1462
TR53 2SD2216
TR33 2SD2216
TR45 UN9218
D5 MA110
SP/LP
ME
ENVE DET
TR52 UN9213
TR51 UN9111
TR25 UN9111
TR26 UN9211
V.OUT
TP8
C109 0.056
C48 10/10
VR6 47K
AGC
R139 5.1K
DATE DISPLAY
TRICK
SI CK CS
TR15 2SD2216
TR14 2SD2216
TP5
C59 100P
VR5 1K
Y/C COMB PHASE
C24 1.0
C23 0.01
VR4 47K
Y/C COMB LEVEL
C22 10/6.3
C21 10/6.3
C20 10/6.3
TP4
BUS DECODER
ACL TYPE
TR27 2SD2216
C64 0.022
R72 1.8K
C63 10P
R69 1.8K
TR24 2SD2216
D2 MA147
L12 47
C67 0.01
L9 10
C68 43P
PB Y
TP9
REC Y
R59 100K
C54 0.01
C55 3300P
R63 470K
TR23 2SD2216
C57 0.01
IC1 CXA1207AR
C75 470P
R84 1K
R89 3.6K
VR9 1K
FM DEV
TP11
FM CARRIER
R90 4.7K
VR10 10K
C78 47/6.3
FL3 4602
DEM LPF
R79 1K
TR28 2SD2216
PB.Y1
VR8 2.2K
C74 22P
TR29 2SD2216
TR30 2SD4617
R115 2.2K
TR31 UN9213
R94 47K
C104 0.01
C105 0.01
R95 47K
4.2V REG
TR20 UN9211
TR54 UN9213
TR21 UN9211
D9 MA110
R136 10K
V.SWP
SWP
TP10
C264 0.1
TR222 UN9213
REC ATF
VR204 4.7K
TR209 2SD2216
R241 10K
C235 0.01
C236
TR208 2SB1462
TR210 2SB1462
TR211 2SD2216
REC APM
VR205 4.7K
PB ENVE
REC 5V
R MUTE
C110 0.01

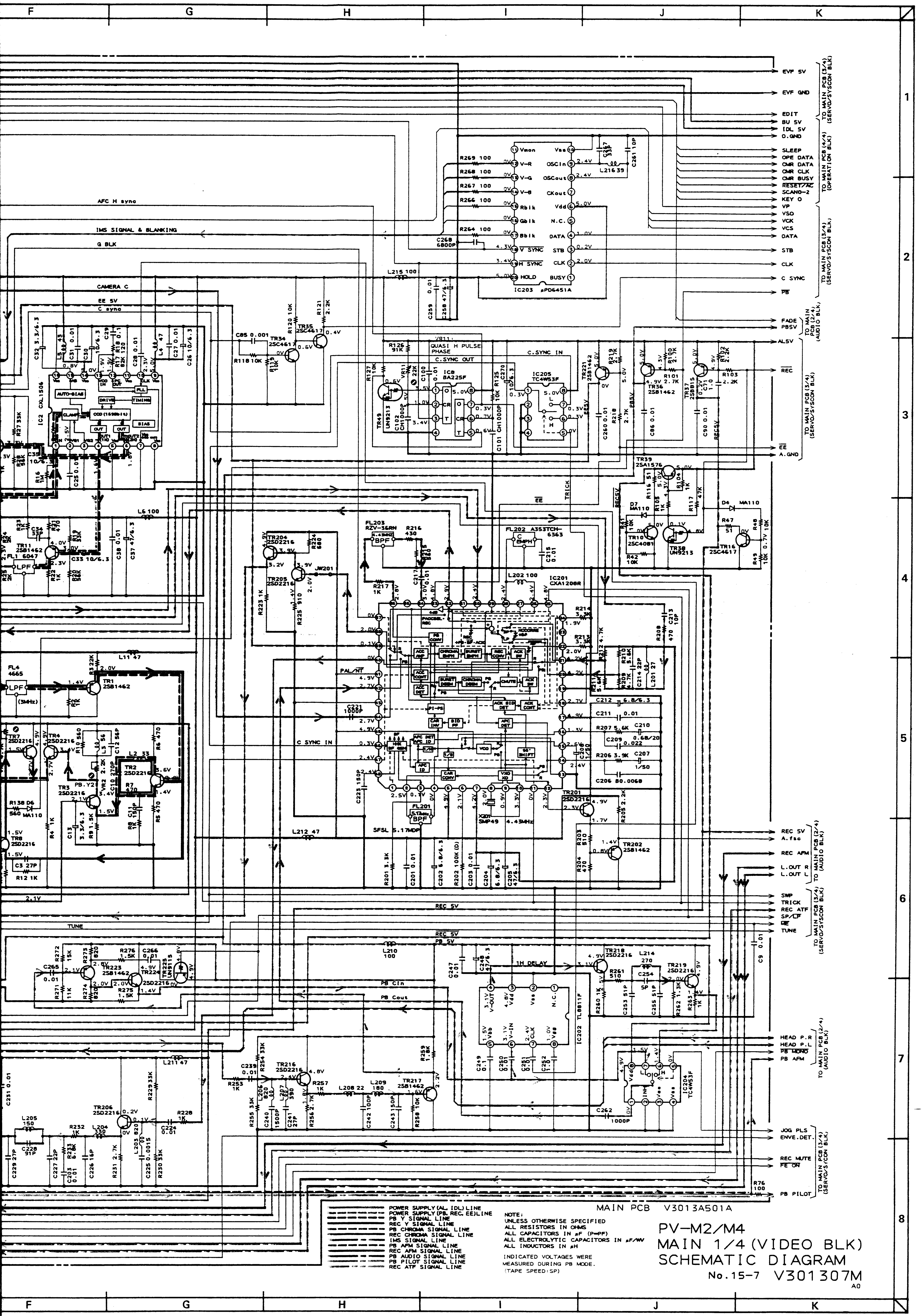

D
E
F
G
H
I
J
IC203 μPD6451A
Vmon
V-R
V-G
V-B
Rblk
Gblk
Bblk
V SYNC
H SYNC
HOLD
Vss
OSCin
OSCout
CKout
Vdd
N.C.
DATA
STB
CLK
BUSY
AFC H sync
IMS SIGNAL & BLANKING
G BLK
CAMERA C
EE 5V
C sync
IC2 CXL1506
AUTO-BIAS
DRIVE
TIMING
PLL
CLAMP
CCD (1690bit)
BIAS
OUT
VR11 QUASI H PULSE PHASE
C.SYNC OUT
C.SYNC IN
IC6 BA225F
IC205 TC4W53F
Y/C COMB PHASE
Y/C COMB LEVEL
FL2 6045
FL1 6047
LPF
FL4 4665
(5MHz)
TRICK
SI
CK
CS
DATE DISPLAY
SUB DECODER
FL203 RZV-36RN
FL202 A353TCH-6363
IC201 CXA1208R
PAL/NT
C SYNC IN
SFSL 5.17MHz
FL201 5.17MHz BPF
X201 SMP49 4.43MHz
FM CARRIER
FM DEV
Y EMPHA
PB Y2
4.2V REG
REC 5V
PB 5V
TUNE
PB Cin
PB Cout
1H DELAY
IC202 TL6811F
REC 5V
REC ATF
REC AFM
REC CHROMA
MAIN PCB

━━━━━━	POWER SUPPLY (AL, IDL) LINE
━ ━ ━ ━	POWER SUPPLY (PB, REC, EE) LINE
▬ ▬ ▬ ▬	PB Y SIGNAL LINE
━━━━━━	REC Y SIGNAL LINE
━ ━ ━ ━	PB CHROMA SIGNAL LINE
━━━━━━	REC CHROMA SIGNAL LINE
━━━ ━ ━━	IMS SIGNAL LINE
━ ━ ━ ━	PB AFM SIGNAL LINE
━━━━━━	REC AFM SIGNAL LINE
━━━ ━ ━━	PB AUDIO SIGNAL LINE
━━━ ━ ━━	PB PILOT SIGNAL LINE
━━━ ━ ━━	REC ATF SIGNAL LINE

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV
ALL INDUCTORS IN μH

INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
(TAPE SPEED: SP)

MAIN PCB



F
G
H
I
J
K
1
2
3
4
5
6
7
8
EVF 5V
EVF GND
EDIT
BU 5V
IDL 5V
D.GND
TO MAIN PCB (3/4) (SERVO/SYSCON BLK)
SLEEP
OPE DATA
CMR DATA
CMR CLK
CMR BUSY
RESET/AC
SCAN0~2
KEY 0
TO MAIN PCB (4/4) (OPERATION BLK)
VP
VSO
VCK
VCS
DATA
STB
CLK
C SYNC
PB
TO MAIN PCB (3/4) (SERVO/SYSCON BLK)
FADE
PBSV
TO MAIN PCB (2/4) (AUDIO BLK)
ALSV
REC
EE
A.GND
TO MAIN PCB (3/4) (SERVO/SYSCON BLK)
REC 5V
A.fsc
REC AFM
L.OUT R
L.OUT L
TO MAIN PCB (2/4) (AUDIO BLK)
SWP
TRICK
REC ATF
SP/LP
EE
TUNE
TO MAIN PCB (3/4) (SERVO/SYSCON BLK)
HEAD P.R
HEAD P.L
PB MONO
PB AFM
TO MAIN PCB (2/4) (AUDIO BLK)
JOG PLS
ENVE.DET.
REC MUTE
FE ON
PB PILOT
TO MAIN PCB (3/4) (SERVO/SYSCON BLK)
IC203 μPD6451A
IC8 BA225F
IC205 TC4W53F
IC201 CXA1206R
IC202 TL6811F
IC204 TC4W53F
IC2 CXL1506
AFC H sync
IMS SIGNAL & BLANKING
G BLK
CAMERA C
EE 5V
C sync
C.SYNC IN
QUASI H PULSE PHASE
C.SYNC OUT
PAL/NT
C SYNC IN
REC 5V
PB 5V
1H DELAY
PB CIn
PB Cout
TUNE
SFSL 5.17MHz
X201 SMP49 4.43MHz
FL4 4665
FL1 6047
FL201
FL202 A353TCH-6363
FL203 RZV-36RN
POWER SUPPLY (AL, IDL) LINE
POWER SUPPLY (PB, REC, EE) LINE
PB Y SIGNAL LINE
REC Y SIGNAL LINE
PB CHROMA SIGNAL LINE
REC CHROMA SIGNAL LINE
IMS SIGNAL LINE
PB AFM SIGNAL LINE
REC AFM SIGNAL LINE
PB AUDIO SIGNAL LINE
PB PILOT SIGNAL LINE
REC ATF SIGNAL LINE

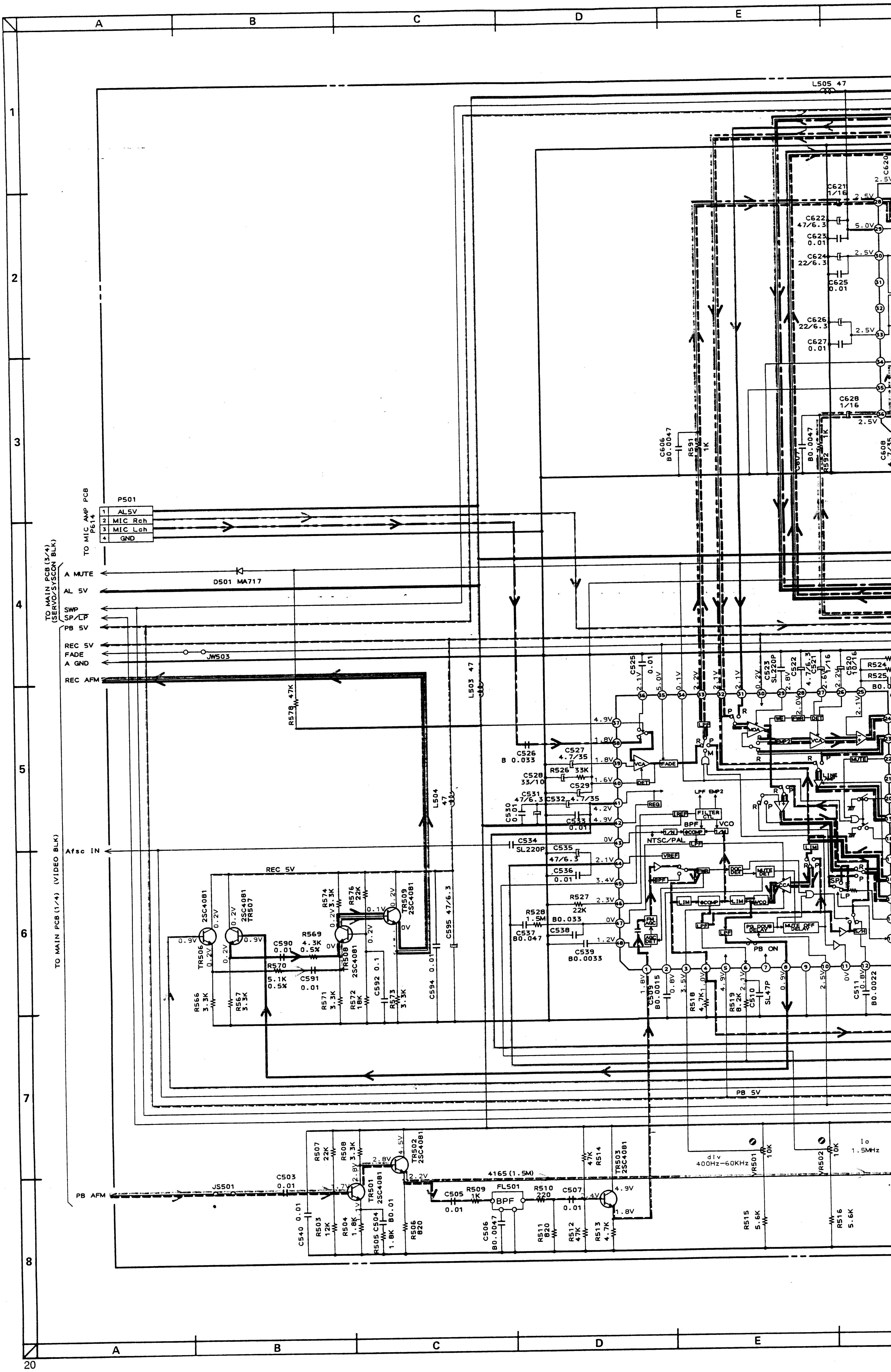
MAIN PCB V3013A501A

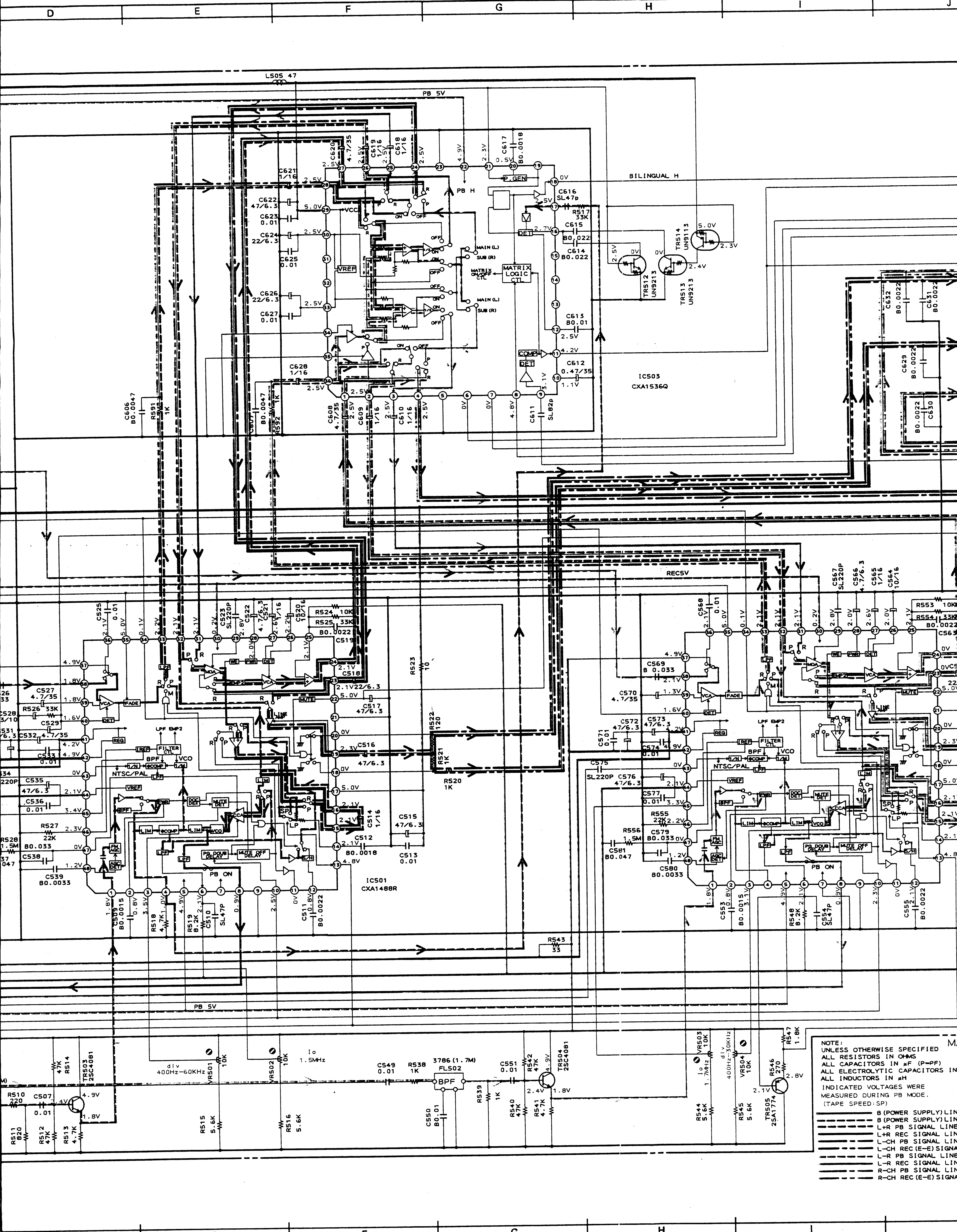
NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV
ALL INDUCTORS IN μH

INDICATED VOLTAGES WERE MEASURED DURING PB MODE.
(TAPE SPEED:SP)

PV-M2/M4
MAIN 1/4 (VIDEO BLK)
SCHEMATIC DIAGRAM

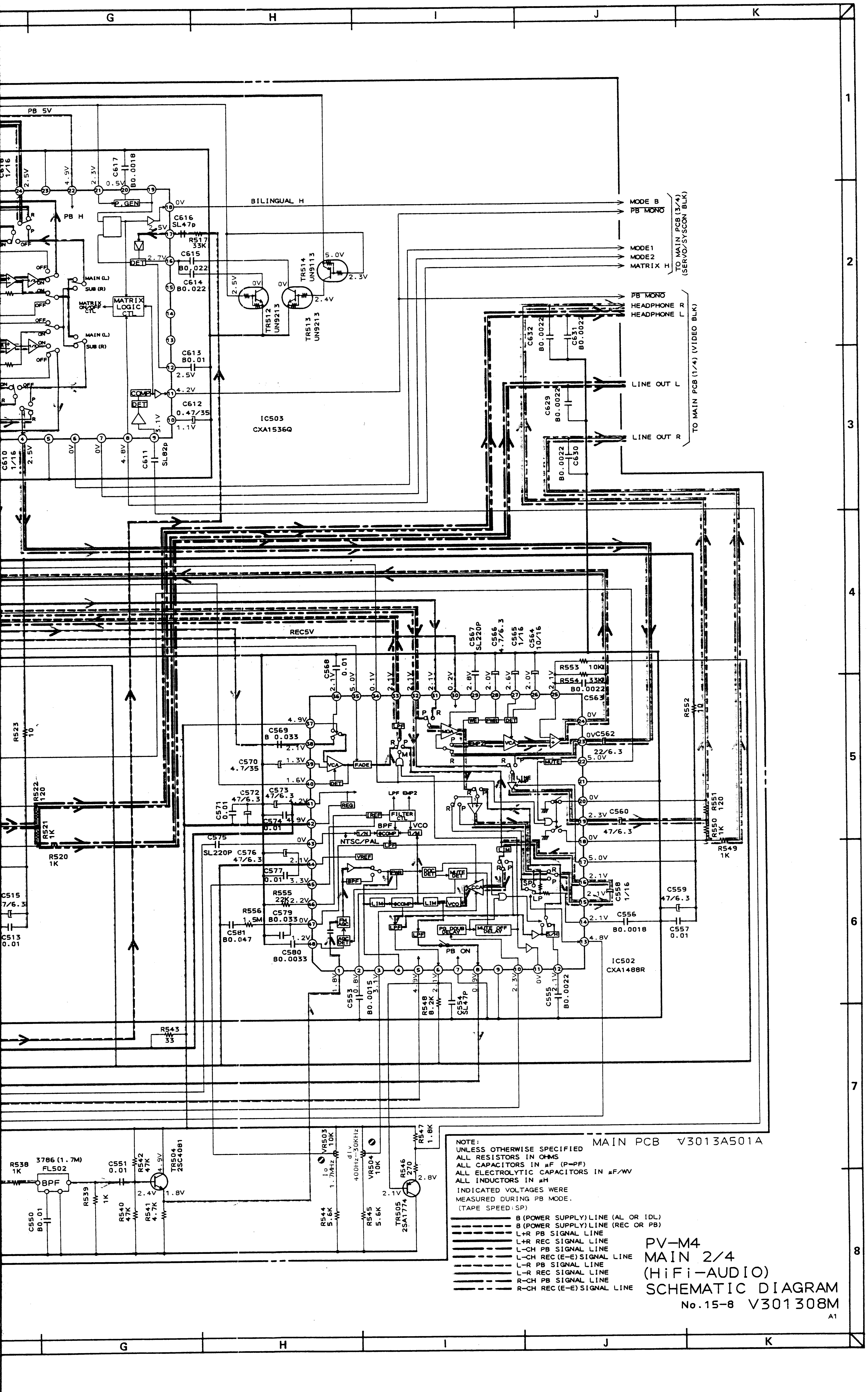
No.15-7 V301307M
A0


A
B
C
D
E
1
2
3
4
5
6
7
8
TO MIC AMP PCB P614
P501
1 AL 5V
2 MIC Rch
3 MIC Lch
4 GND
TO MAIN PCB (3/4) (SERVO/SYSCON BLK)
A MUTE
AL 5V
SWP
SP/LP
PB 5V
REC 5V
FADE
A GND
REC AFM
D501 MA717
JW503
TO MAIN PCB (1/4) (VIDEO BLK)
Afsc IN
PB AFM
JS501
R578 47K
L503 47
L504 47
L505 47
REC 5V
TR506 2SC4081
TR507 2SC4081
TR508 2SC4081
TR509 2SC4081
R566 3.3K
R567 3.3K
R569 4.3K 0.5%
R570 5.1K 0.5%
C590 0.01
C591 0.01
R571 3.3K
R572 18K
C592 0.1
R573 3.3K
R574 3.3K
R576 22K
C594 0.01
C595 47/6.3
C526 B 0.033
C527 4.7/35
R526 33K
C528 33/10
C529
C530 0.01
C531 47/6.3
C532 4.7/35
C533 0.01
C534 SL220P
C535 47/6.3
C536 0.01
R527 22K
R528 1.5M
C537 B0.047
C538 B0.033
C539 B0.0033
C525 0.01
C523 SL220P
C522 4.7/6.3
C521 10/16
C520 10/6.3
R524
R525
C506 B0.0015
R518 4.7K
R519 8.2K
C510 SL47P
C511 B0.0022
C606 B0.0047
R591 1K
C607 B0.0047
R592 1K
C608
C620
C621 1/16
C622 47/6.3
C623 0.01
C624 22/6.3
C625 0.01
C626 22/6.3
C627 0.01
C628 1/16
VCA
FADE
DET
REG
LREF
FILTER CTL
BPF
VCO
NTSC/PAL
LPF
VREF
FWR
DOC DET
MUTE DET
FM AGC
AGC DET
LIM
ΦCOMP
PB DOUB DELAY
MUTE OFF DELAY
PB ON
LPF EMP2
MDA
WE
EMP2
MUTE
LINE
S/H
LP
SP
CCA
PB 5V
C503 0.01
C540 0.01
R503 12K
R504 1.8K
R505 1.8K
C504 B0.01
R506 820
R507 22K
R508 3.3K
TR501 2SC4081
TR502 2SC4081
4165 (1.5M)
C505 0.01
R509 1K
FL501 BPF
R510 220
C507 0.01
C506 B0.0047
R511 820
R512 47K
R513 4.7K
R514 47K
TR503 2SC4081
VR501 10K
d l v 400Hz—60KHz
VR502 10K
I o 1.5MHz
R515 5.6K
R516 5.6K
4.9V
1.8V
1.6V
4.2V
0V
2.1V
3.4V
2.3V
1.2V
2.5V
5.0V
2.8V
2.2V
1.7V
0.9V
0.2V
0.1V


D
E
F
G
H
I
J
L505 47
PB 5V
BILINGUAL H
P.GEN
DET
MATRIX LOGIC CTL
MATRIX ON/OFF CTL
MAIN (L)
SUB (R)
VREF
VCC
COMP
IC503
CXA1536Q
C617 B0.0018
C618 1/16
C619 1/16
C620 4.7/35
C621 1/16
C622 47/6.3
C623 0.01
C624 22/6.3
C625 0.01
C626 22/6.3
C627 0.01
C628 1/16
C606 B0.0047
R591 1K
R592 1K
C607 B0.0047
C608 4.7/35
C609 1/16
C610 1/16
C611 SL82p
C612 0.47/35
C613 B0.01
C614 B0.022
C615 B0.022
C616 SL47p
R517 33K
TR512 UN9213
TR513 UN9213
TR514 UN9113
C629 B0.0022
C630 B0.0022
C631 B0.0022
C632 B0.0022
REC5V
IC501
CXA1488R
C525 0.01
C523 SL220P
C522 4.7/6.3
C521 1/16
C520 10/16
R524 10K
R525 33K
B0.0022
C519
C518
C517 47/6.3
C516 47/6.3
C515 47/6.3
C514 1/16
C512 B0.0018
C513 0.01
C511 B0.0022
C510 SL47P
C509 B0.0015
R518 4.7K
R519 8.2K
R523 10
R522 120
R521 1K
R520 1K
R543 33
C527 4.7/35
R526 33K
C528 3/10
C529
R531
C532 4.7/35
C533 0.01
C535 47/6.3
C536 0.01
R527 22K
R528 1.5M
B0.033
C538
C539 B0.0033
MOA
VCA
FADE
DET
LPF
EMP2
FILTER CTL
BPF
VCO
NTSC/PAL
REF
REG
MUTE
LINE AMP
WE
PWR
LIM
COMP
CCA
PG DOUB DELAY
MUTE OFF DELAY
S/H
SP
LP
PB ON
FM AGC
AGC DET
DOC DET
MUTE DET
C568 0.01
C569 B 0.033
C570 4.7/35
C571 0.01
C572 47/6.3
C573 47/6.3
C574 0.01
C575 SL220P
C576 47/6.3
C577 0.01
R555 22K
R556 1.5M
C579 B0.033
C580 B0.0033
C581 B0.047
C553 B0.0015
R548 8.2K
C554 SL47P
C555 B0.0022
C567 SL220P
C566 4.7/6.3
C565 1/16
C564 10/16
R553 10K
R554 33K
B0.0022
C563
PB 5V
R514 47K
TR503 2SC4081
R510 220
C507 0.01
R511 820
R512 47K
R513 4.7K
VR501
d1v 400Hz-60KHz
R515 5.6K
VR502 10K
Io 1.5MHz
R516 5.6K
C549 0.01
R538 1K
3786 (1.7M)
FL502
BPF
C550 B0.01
R539 1K
C551 0.01
R542 47K
TR504 2SC4081
R540 47K
R541 4.7K
VR503 10K
Io 1.7MHz
d1v 400Hz-30KHz
VR504 10K
R544 5.6K
R545 5.6K
R546 270
R547 1.8K
TR505 2SA1774
D
E
F
G
H
I

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN µF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN
ALL INDUCTORS IN µH
INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
(TAPE SPEED: SP)

B (POWER SUPPLY) LIN
B (POWER SUPPLY) LIN
L+R PB SIGNAL LINE
L+R REC SIGNAL LIN
L-CH PB SIGNAL LIN
L-CH REC (E-E) SIGNA
L-R PB SIGNAL LINE
L-R REC SIGNAL LIN
R-CH PB SIGNAL LIN
R-CH REC (E-E) SIGNA

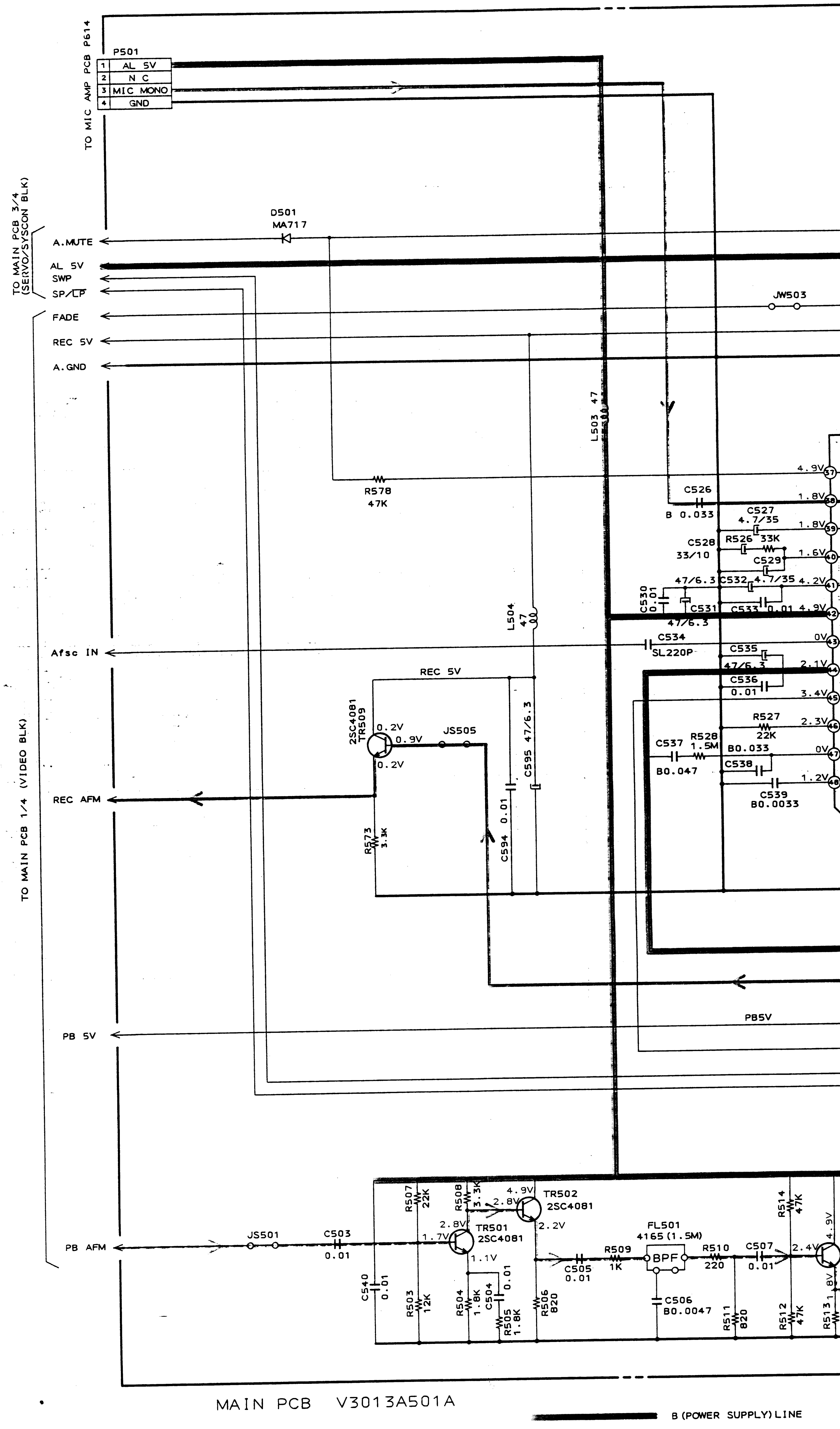

G
H
I
J
K
1
2
3
4
5
6
7
8
PB 5V
PB H
BILINGUAL H
P.GEN
DET
COMP
DET
MATRIX LOGIC CTL
MATRIX ON/OFF CTL
MAIN (L)
SUB (R)
ON
OFF
C617 0.5V B0.0018
C616 SL47p
R517 33K
C615 B0.022
C614 B0.022
C613 B0.01
C612 0.47/35
C611 SL82p
C610 1/16
IC503
CXA1536Q
TR514 UN9113
TR512 UN9213
TR513 UN9213
MODE B
PB MONO
MODE1
MODE2
MATRIX H
TO MAIN PCB (3/4) (SERVO/SYSCON BLK)
PB MONO
HEADPHONE R
HEADPHONE L
LINE OUT L
LINE OUT R
TO MAIN PCB (1/4) (VIDEO BLK)
C632 B0.0022
C631 B0.0022
C629 B0.0022
C630 B0.0022
REC5V
C568 0.01
C567 SL220P
C566 4.7/6.3
C565 1/16
C564 10/16
R553 10K
R554 33K
B0.0022
C563
C562
22/6.3
C569 B 0.033
C570 4.7/35
C571 0.01
C572 47/6.3
C573 47/6.3
C574 0.01
C575 SL220P
C576 47/6.3
C577 0.01
R555 22K
R556 1.5M
C579 B0.033
C581 B0.047
C580 B0.0033
C560 47/6.3
C558 1/16
C559 47/6.3
C556 B0.0018
C557 0.01
C553
B0.0015
R548 8.2K
C554 SL47p
C555 B0.0022
R552 10
R551 120
R550 1K
R549 1K
VCA
FADE
DET
REG
LPF
EMP2
FILTER CTL
BPF
VCO
NTSC/PAL
REF
1/N
ΦCOMP
VREF
PNR
DOC DET
MUTE DET
CCA
LIM
FM AGC
ADC DET
PB DOUB DELAY
MUTE OFF DELAY
MOA
WE
PWR
MUTE
LINE AMP
PB ON
IC502
CXA1488R
R523 10
R522 120
R521 1K
R520 1K
C515 47/6.3
C513 0.01
R543 33
R538 1K
3786 (1.7M)
FL502
BPF
C550 B0.01
C551 0.01
R539 1K
R542 47K
R540 47K
R541 4.7K
TR504 2SC4081
VR503 10K
1.7MHz
VR504 10K
400Hz-30KHz
R544 5.6K
R545 5.6K
R547 1.8K
R546 270
TR505 2SA1774

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN µF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN µF/WV
ALL INDUCTORS IN µH
INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
(TAPE SPEED:SP)

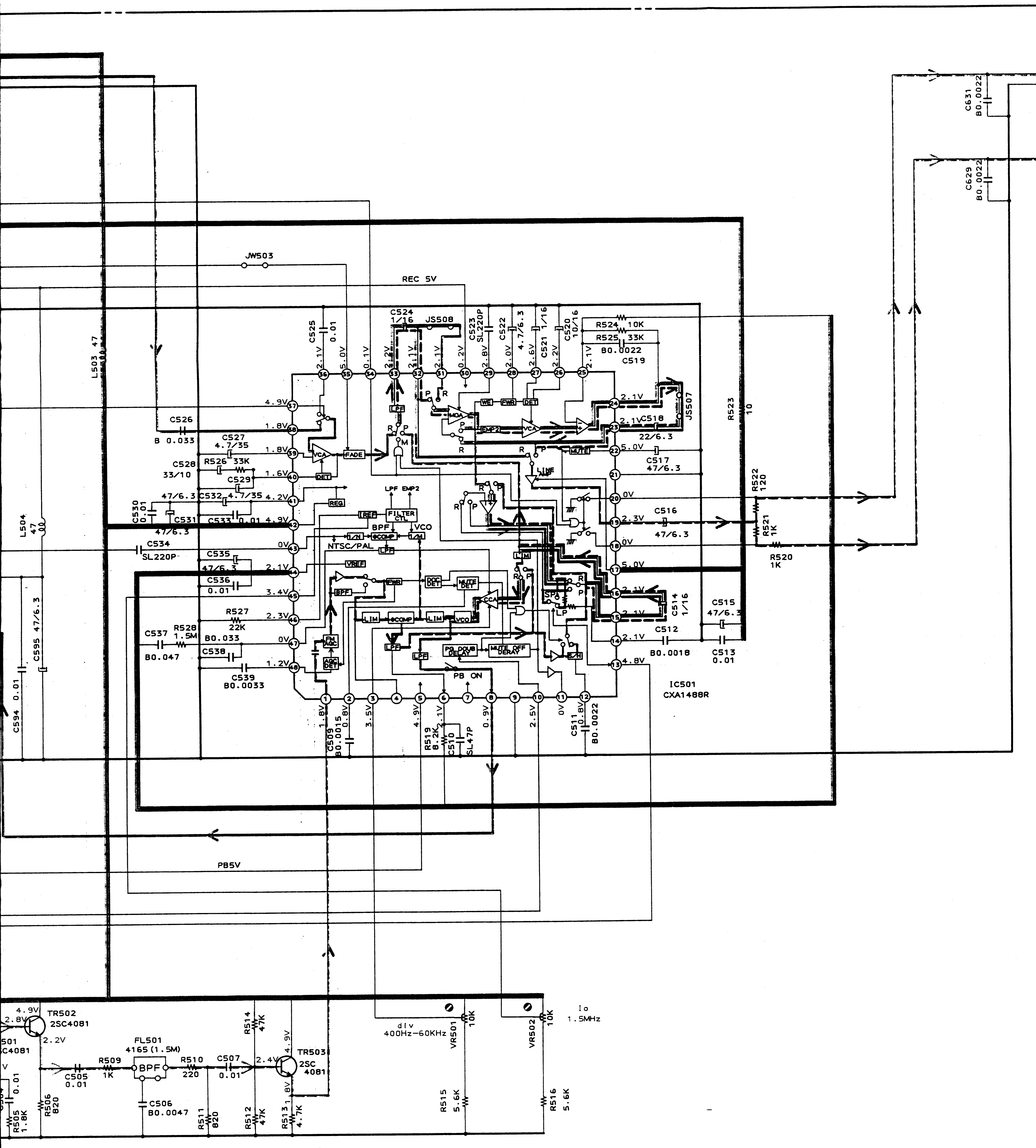
MAIN PCB V3013A501A

———————	B (POWER SUPPLY) LINE (AL OR IDL)
– – – – – – –	B (POWER SUPPLY) LINE (REC OR PB)
– – – – – – –	L+R PB SIGNAL LINE
———————	L+R REC SIGNAL LINE
—— – ——	L-CH PB SIGNAL LINE
—— – – ——	L-CH REC (E-E) SIGNAL LINE
– – – – – – –	L-R PB SIGNAL LINE
———————	L-R REC SIGNAL LINE
—— – ——	R-CH PB SIGNAL LINE
—— – – ——	R-CH REC (E-E) SIGNAL LINE

PV-M4
MAIN 2/4
(HiFi-AUDIO)
SCHEMATIC DIAGRAM
No.15-8 V301308M
A1


TO MIC AMP PCB P614
P501
1 AL 5V
2 N C
3 MIC MONO
4 GND
TO MAIN PCB 3/4 (SERVO/SYSCON BLK)
A.MUTE
AL 5V
SWP
SP/LP
D501
MA717
JW503
FADE
REC 5V
A.GND
L503 47
R578
47K
C526
B 0.033
C527
4.7/35
C528
33/10
R526 33K
C529
47/6.3
C532 4.7/35
C530 0.01
C531
C533 0.01
47/6.3
4.9V
1.8V
1.8V
1.6V
4.2V
4.9V
0V
2.1V
3.4V
2.3V
0V
1.2V
37
38
39
40
41
42
43
44
45
46
47
48
L504
47
Afsc IN
C534
SL220P
C535
47/6.3
C536
0.01
R527
22K
R528
1.5M
C537
B0.047
B0.033
C538
C539
B0.0033
REC 5V
2SC4081
TR509
0.2V
0.9V
0.2V
JS505
C595 47/6.3
C594 0.01
TO MAIN PCB 1/4 (VIDEO BLK)
REC AFM
R573
3.3K
PB5V
PB 5V
PB AFM
JS501
C503
0.01
C540
0.01
R503
12K
R507
22K
R508
3.3K
TR501
2SC4081
2.8V
1.7V
1.1V
4.9V
2.8V
TR502
2SC4081
2.2V
R504
1.8K
C504
0.01
R505
1.8K
R506
820
C505
0.01
R509
1K
FL501
4165 (1.5M)
BPF
C506
B0.0047
R510
220
R511
820
C507
0.01
2.4V
4.9V
1.8V
R514
47K
R512
47K
R513
MAIN PCB V3013A501A
B (POWER SUPPLY) LINE
PB AUDIO SIGNAL LINE
REC AUDIO SIGNAL LINE

D E F G H I



C631
B0.0022
C629
B0.0022
JW503
REC 5V
L503 47
C524
1/16
JS508
C525
0.01
C523
SL220P
C522
4.7/6.3
C521
1/16
C520
10/16
R524 10K
R525 33K
B0.0022
C519
JS507
R523
10
C526
B 0.033
C527
4.7/35
C528
33/10
R526 33K
C529
47/6.3
C532 4.7/35
C530
0.01
C531
47/6.3
C533 0.01
C534
SL220P
C535
47/6.3
C536
0.01
R527
22K
C537
B0.047
R528
1.5M
B0.033
C538
C539
B0.0033
L504
47
C594 0.01
C595 47/6.3
C518
22/6.3
C517
47/6.3
C516
47/6.3
R522
120
R521
1K
R520
1K
C514
1/16
C515
47/6.3
C512
B0.0018
C513
0.01
IC501
CXA1488R
VCA
FADE
DET
REG
IREF
FILTER CTL
BPF
VCO
NTSC/PAL
LPF
EMP2
VREF
PWR
DOC DET
MUTE DET
CCA
LIM
COMP
FM AGC
AGC DET
PB DOUB DELAY
MUTE OFF DELAY
PB ON
LINE AMP
MUTE
MOA
WE
S/H
SP
LP
C509
B0.0015
R519
8.2K
C510
SL47P
C511
B0.0022
PB5V
TR502
2SC4081
TR501
2SC4081
FL501
4165 (1.5M)
R509
1K
C505
0.01
R510
220
C507
0.01
R514
47K
TR503
2SC
4081
R506
820
R505
1.8K
C506
B0.0047
R511
820
R512
47K
R513
4.7K
VR501
10K
dlv
400Hz-60KHz
VR502
10K
Io
1.5MHz
R515
5.6K
R516
5.6K

B (POWER SUPPLY) LINE

PB AUDIO SIGNAL LINE

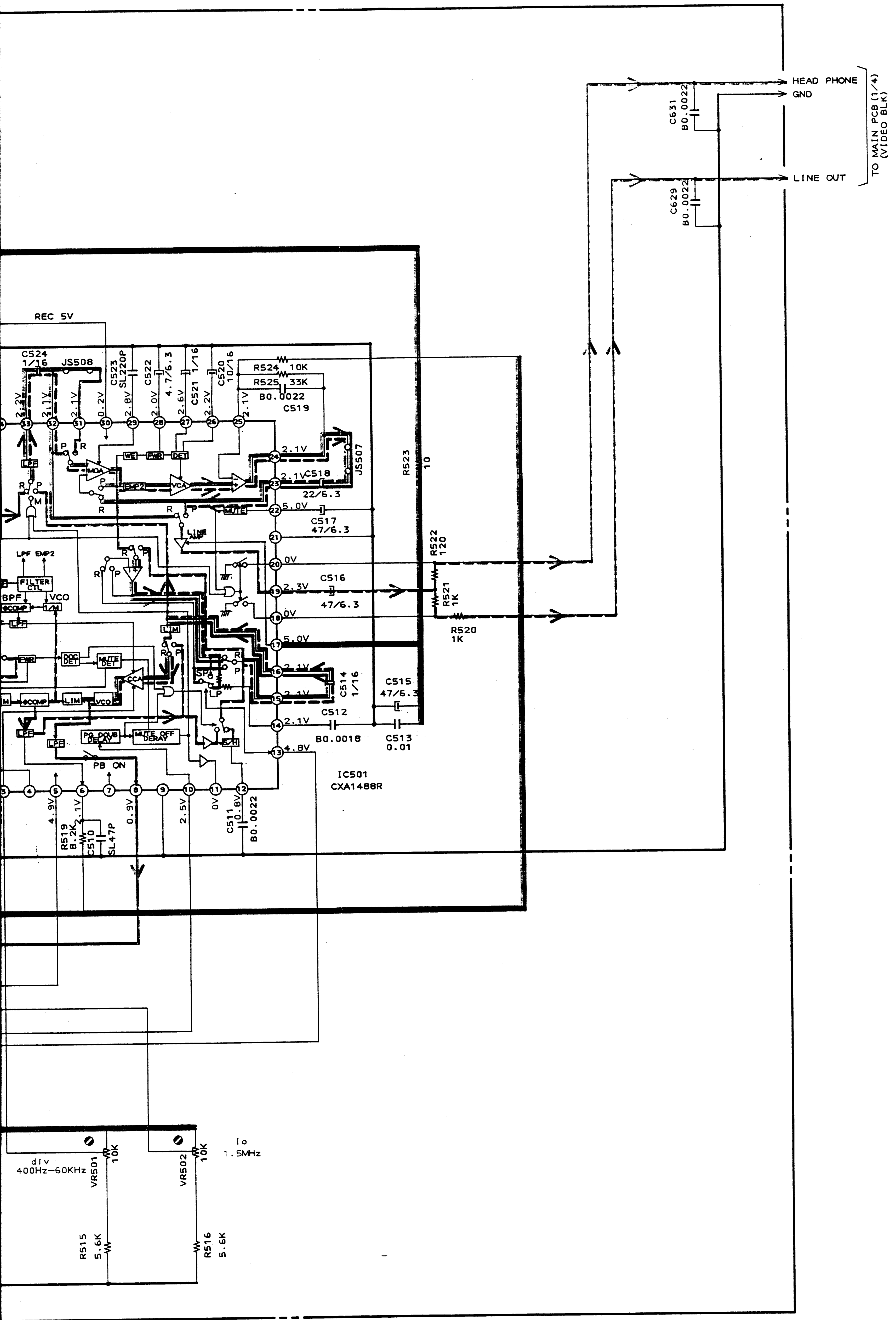
REC AUDIO SIGNAL LINE

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV
ALL INDUCTORS IN μH

INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
(TAPE SPEED: SP)

PV-M2
MAIN 2/4
(HiFi-AUDIO·MON
SCHEMATIC DIAG
No.15-9 V3013

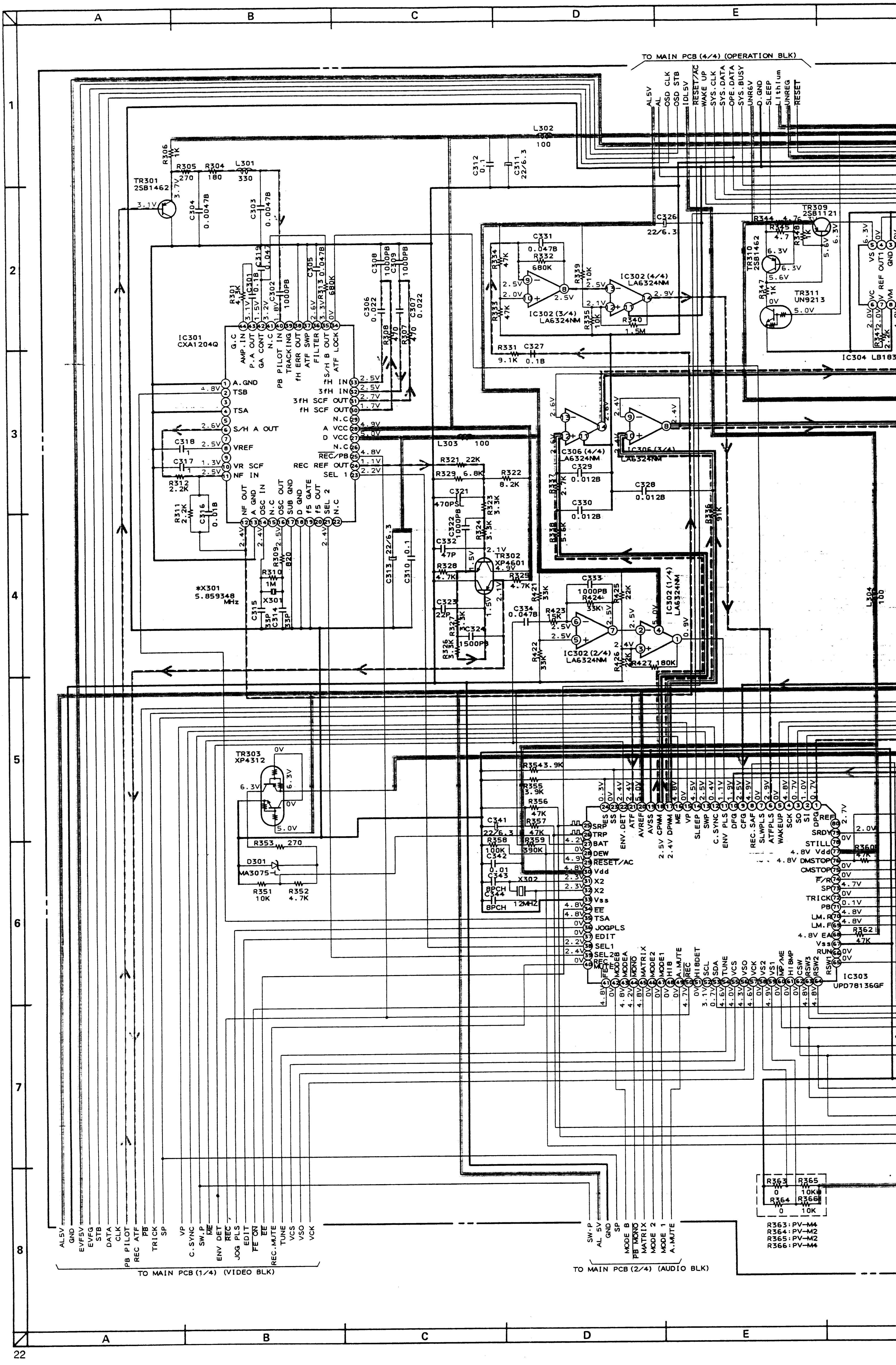
D E F G H I

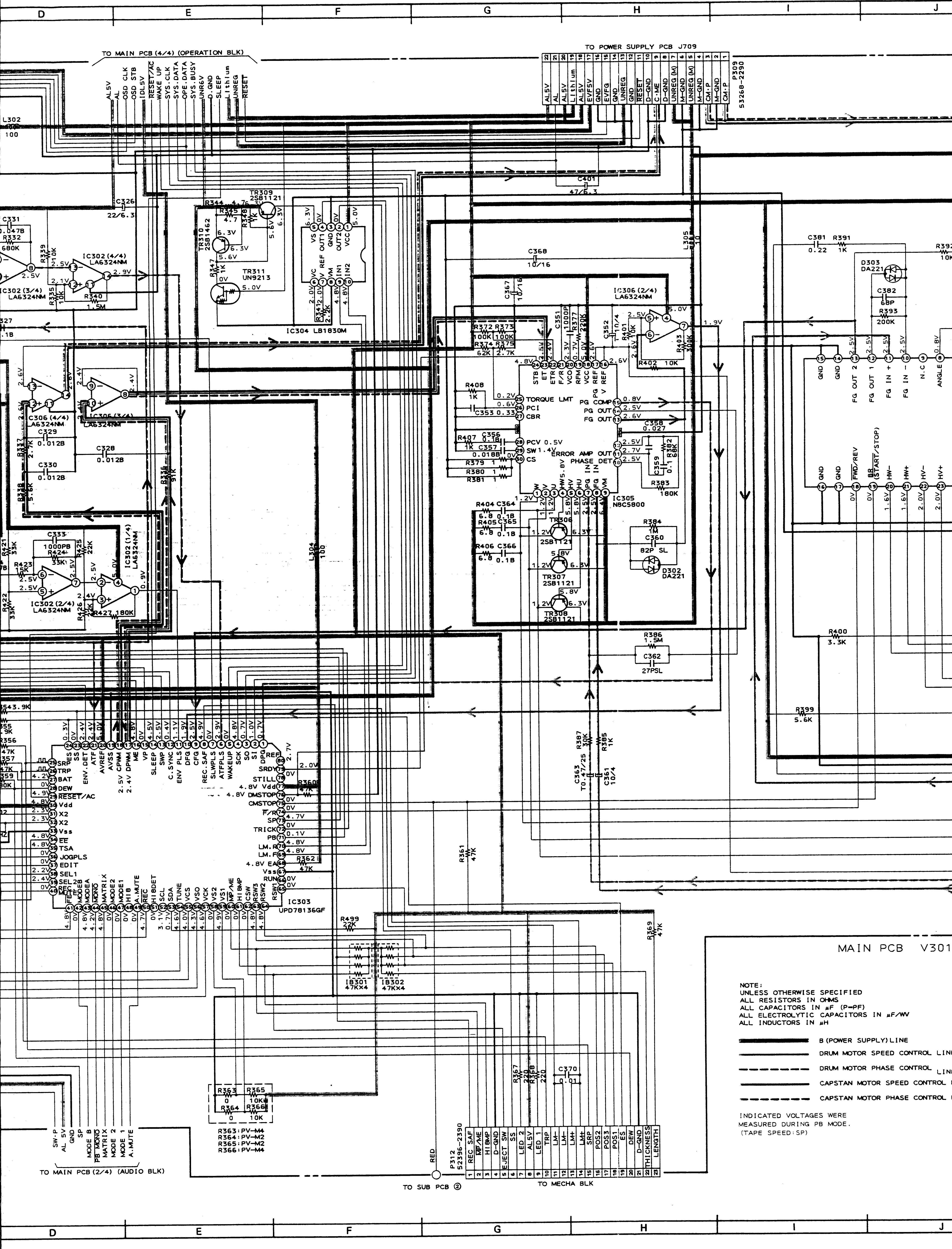

HEAD PHONE
GND
LINE OUT
TO MAIN PCB (1/4) (VIDEO BLK)
C631 B0.0022
C629 B0.0022
REC 5V
C524 1/16
JS508
C523 SL220P
C522 4.7/6.3
C521 1/16
C520 10/16
R524 10K
R525 33K
B0.0022 C519
2.2V
2.1V
2.1V
0.2V
2.8V
2.0V
2.6V
2.2V
2.1V
MOA
WE
FWR
DET
EMP2
VCA
JS507
C518 22/6.3
5.0V
MUTE
C517 47/6.3
LINE AMP
R523 10
R522 120
LPF EMP2
FILTER CTL
BPF
VCO
COMP
LPF
C516 47/6.3
2.3V
0V
0V
R521 1K
R520 1K
LIM
5.0V
DOC DET
MUTE DET
CCA
SP
LP
C514 1/16
C515 47/6.3
2.1V
2.1V
2.1V
C512 B0.0018
C513 0.01
PG DOUB DELAY
MUTE OFF DERAY
S/H
4.8V
PB ON
IC501 CXA1488R
4.9V
2.1V
0.9V
2.5V
0V
0.8V
R519 8.2K
C510 SL47P
C511 B0.0022
VR501 10K
dlv 400Hz−60KHz
VR502 10K
Io 1.5MHz
R515 5.6K
R516 5.6K

NOTE;
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN µF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN µF/WV
ALL INDUCTORS IN µH

INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
(TAPE SPEED: SP)

PV−M2
MAIN 2/4
(HiFi−AUDIO·MONO)
SCHEMATIC DIAGRAM
No.15−9 V301309M
A1


A
B
C
D
E
1
2
3
4
5
6
7
8
TO MAIN PCB (4/4) (OPERATION BLK)
AL5V
AL
OSD CLK
OSD STB
IDL5V
RESET/AC
WAKE UP
SYS.CLK
SYS.DATA
OPE.DATA
SYS.BUSY
UNR6V
D.GND
SLEEP
Lithium
UNREG
RESET
L302
100
R306
1K
TR301
2SB1462
R305
270
R304
180
L301
330
C304
0.0047B
C303
0.0047B
C312
0.1
C311
22/6.3
IC301
CXA1204Q
R301
4.3K
C301
0.1B
C319
0.047
C302
1000PB
C305
0.047B
R313
680K
C308
1000PB
C309
1000PB
C306
0.022
C307
0.022
R308
470
R307
470
G.C
AMP.IN
P.A OUT
GA CONT
N.C
PB PILOT IN
TRACKING
fH ERR OUT
ATF SWP
FILTER
S/H B OUT
ATF LOCK
A.GND
TSB
TSA
S/H A OUT
VREF
VR SCF
NF IN
fH IN
3fH IN
3fH SCF OUT
fH SCF OUT
N.C
A VCC
D VCC
REC/PB
REC REF OUT
SEL 1
NF OUT
A GND
OSC IN
N.C
OSC OUT
SUB GND
D GND
fS GATE
fS OUT
SEL 2
C318
C317
R312
2.2K
R311
2.2K
C316
0.01B
R309
820
R310
1M
X301
C315
33P
C314
33P
*X301
5.859348
MHz
C313
22/6.3
C310
0.1
L303
100
R321
22K
R329
6.8K
R322
8.2K
C321
470P
C322
1000PB
R323
3.3K
R324
3.3K
C332
47P
TR302
XP4601
R328
4.7K
R325
4.7K
C323
22P
R327
3.3K
C324
1500PB
R326
3.3K
C331
0.047B
R332
680K
R334
47K
R333
47K
R339
10K
IC302 (3/4)
LA6324NM
IC302 (4/4)
LA6324NM
R335
10K
R340
1.5M
C326
22/6.3
R331
9.1K
C327
0.1B
IC306 (4/4)
LA6324NM
IC306 (3/4)
LA6324NM
C329
0.012B
C328
0.012B
C330
0.012B
R337
2.7K
R338
5.6K
R336
91K
C333
1000PB
R424
33K
R425
22K
R421
33K
C334
0.047B
R423
15K
IC302 (2/4)
LA6324NM
IC302 (1/4)
LA6324NM
R422
33K
R426
22K
R427
180K
TR309
2SB1121
R344
4.7
R345
4.7
R348
1K
TR310
2SB1462
R347
1K
TR311
UN9213
IC304 LB183
R342
2.2K
L304
100
TR303
XP4312
R353
270
D301
MA3075
R351
10K
R352
4.7K
R354
3.9K
R355
3.9K
R356
47K
R357
47K
R358
100K
R359
390K
C341
22/6.3
C342
0.01
C343
8PCH
C344
8PCH
X302
12MHZ
SRP
TRP
BAT
DEW
RESET/AC
Vdd
X2
X2
Vss
EE
TSA
JOGPLS
EDIT
SEL1
SEL2
REC MUTE
ES
SS
ENV.DET
ATF
AVREF
AVSS
CPWM
DPWM
ME
VP
SLEEP
SWP
C.SYNC
ENV PLS
DFG
CFG
REC.SAF
SLWPLS
ATFPLS
WAKEUP
SCK
SO
SI
DPG
REF
SRDY
STILL
Vdd
DMSTOP
CMSTOP
F/R
SP
TRICK
PB
LM.R
LM.F
EA
Vss
RUN
RSW1
RSW2
CSW
HIBMP
MP/ME
VS1
VS2
VCK
VSO
VCS
TUNE
SDA
SCL
HIBDET
REC
A.MUTE
HIB
MODE1
MODE2
MATRIX
MONO
MODEA
MODEB
FE
IC303
UPD78136GF
R360
47K
R362
47K
R363
0
R365
10K
R364
0
R366
10K
R363:PV-M4
R364:PV-M2
R365:PV-M2
R366:PV-M4
AL5V
GND
EVF5V
EVFG
STB
DATA
CLK
PB PILOT
REC ATF
PB
TRICK
SP
VP
C.SYNC
SW.P
ME
ENV DET
REC
JOG PLS
EDIT
FE ON
EE
REC.MUTE
TUNE
VCS
VSO
VCK
TO MAIN PCB (1/4) (VIDEO BLK)
SW.P
AL 5V
GND
SP
MODE B
PB MONO
MATRIX
MODE 2
MODE 1
A.MUTE
TO MAIN PCB (2/4) (AUDIO BLK)



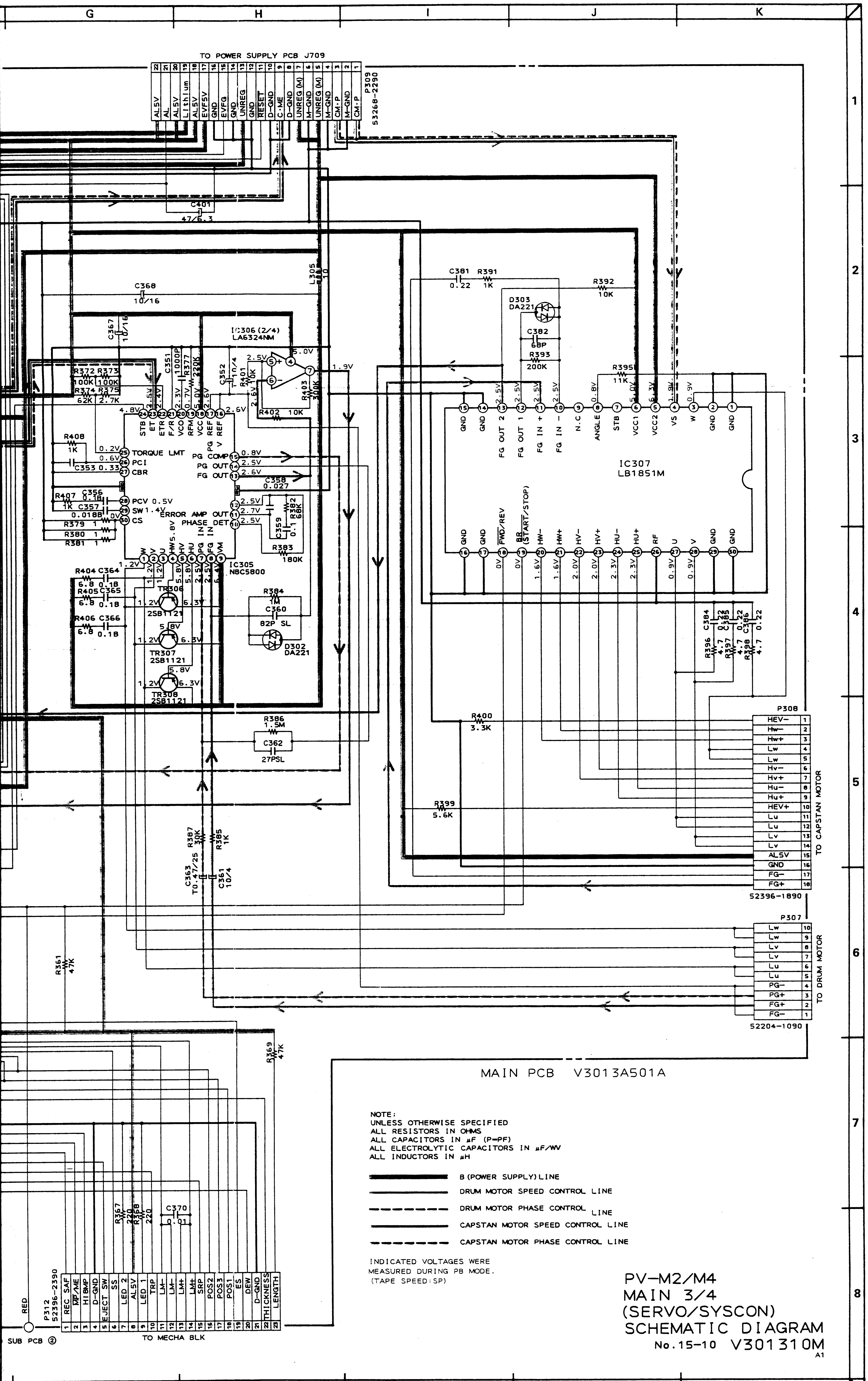
D
E
F
G
H
I
J
TO MAIN PCB (4/4) (OPERATION BLK)
AL5V
AL
OSD CLK
OSD STB
IDL5V
RESET/AC
WAKE UP
SYS.CLK
SYS.DATA
OPE.DATA
SYS.BUSY
UNR6V
D.GND
SLEEP
Lithium
UNREG
RESET
TO POWER SUPPLY PCB J709
P309
53268-2290
AL5V
AL
Lithium
AL5V
EVF5V
GND
EVFG
GND
UNREG
GND
RESET
D-GND
C-ME
D-GND
UNREG (M)
M-GND
UNREG (M)
M-GND
CM-P
M-GND
CM-P
L302
100
C326
22/6.3
C331
0.047B
R332
680K
R339
10K
IC302 (4/4)
LA6324NM
IC302 (3/4)
LA6324NM
R335
10K
R340
1.5M
TR309
2SB1121
R344
4.7
R345
4.7
R348
1K
TR310
2SB1462
R347
1K
TR311
UN9213
IC304 LB1830M
VS
OUT1
GND
OUT2
VCC
VC
REF
VM
IN1
IN2
R341
2.2K
L305
10
C401
47/6.3
C368
10/16
C367
10/16
C381
0.22
R391
1K
D303
DA221
C382
68P
R393
200K
R392
10K
IC306 (2/4)
LA6324NM
R401
10K
C352
10/4
R403
390K
R402
10K
C351
1000P
R377
220K
R372
100K
R373
100K
R374
62K
R375
2.7K
R408
1K
C353 0.33
R407
1K
C356
0.18
C357
0.018B
R379
1
R380
1
R381
1
STB
ET
ETR
F/R
VCO
RFM
VCC
PG V
FG REF
TORQUE LMT
PCI
CBR
PCV
SW1
CS
PG COMP
PG OUT
FG OUT
ERROR AMP OUT
PHASE DET
C358
0.027
C359
0.1
R382
68K
R383
180K
IC305
NBC5800
R404
6.8
C364
0.18
R405
6.8
C365
0.18
R406
6.8
C366
0.18
TR306
2SB1121
TR307
2SB1121
TR308
2SB1121
R384
1M
C360
82P SL
D302
DA221
R386
1.5M
C362
27PSL
R400
3.3K
R399
5.6K
R387
30K
R385
1K
C363
TO.47/25
C361
10/4
R361
47K
GND
FG OUT 2
FG OUT 1
FG IN +
FG IN -
N.C
ANGLE
FWD/REV
BR
(START/STOP)
HW-
HW+
HV-
HV+
C306 (4/4)
LA6324NM
IC306 (3/4)
LA6324NM
C329
0.012B
C328
0.012B
C330
0.012B
R337
2.7K
R338
5.6K
R336
91K
C333
1000PB
R424
33K
R425
22K
R421
33K
R423
15K
IC302 (1/4)
LA6324NM
IC302 (2/4)
LA6324NM
R422
33K
R426
22K
R427 180K
L304
100
R354
3.9K
R355
3.9K
R356
47K
SRP
TRP
BAT
DEW
RESET/AC
Vdd
X2
X2
Vss
EE
TSA
JOGPLS
EDIT
SEL1
SEL2
REC.MUTE
ES
SS
ENV.DET
ATF
AVREF
AVSS
CPWM
DPWM
ME
VP
SLEEP
SWP
C.SYNC
ENV PLS
DFG
CFG
REC.SAF
SLWPLS
ATFPLS
WAKEUP
SCK
SO
SI
DPG
REF
SRDY
STILL
Vdd
DMSTOP
CMSTOP
F/R
SP
TRICK
PB
LM.R
LM.F
EA
Vss
RUN
RSW1
R360
47K
R362
47K
IC303
UPD78136GF
MODEB
MODEA
MONO
MATRIX
MODE2
MODE1
H18
A.MUTE
REC
H18DET
SCL
SDA
TUNE
VCS
VSO
VCK
VS2
VS1
MP/ME
HIBMP
CSW
RSW2
RSW3
R499
22K
IB301
47KX4
IB302
47KX4
R369
47K
R363
0
R365
10K
R364
0
R366
10K
R363:PV-M4
R364:PV-M2
R365:PV-M2
R366:PV-M4
R367
220
R368
220
C370
0.01
SW.P
AL 5V
GND
SP
MODE B
PB MONO
MATRIX
MODE 2
MODE 1
A.MUTE
TO MAIN PCB (2/4) (AUDIO BLK)
RED
TO SUB PCB ②
P312
52396-2390
REC SAF
MP/ME
HIBMP
D-GND
EJECT SW
SS
LED 2
AL5V
LED 1
TRP
LM-
LM-
LM+
SRP
POS2
POS3
POS1
ES
DEW
D-GND
THICKNESS
LENGTH
TO MECHA BLK

MAIN PCB V301

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV
ALL INDUCTORS IN μH

B (POWER SUPPLY) LINE
DRUM MOTOR SPEED CONTROL LIN
DRUM MOTOR PHASE CONTROL LIN
CAPSTAN MOTOR SPEED CONTROL
CAPSTAN MOTOR PHASE CONTROL

INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
(TAPE SPEED: SP)

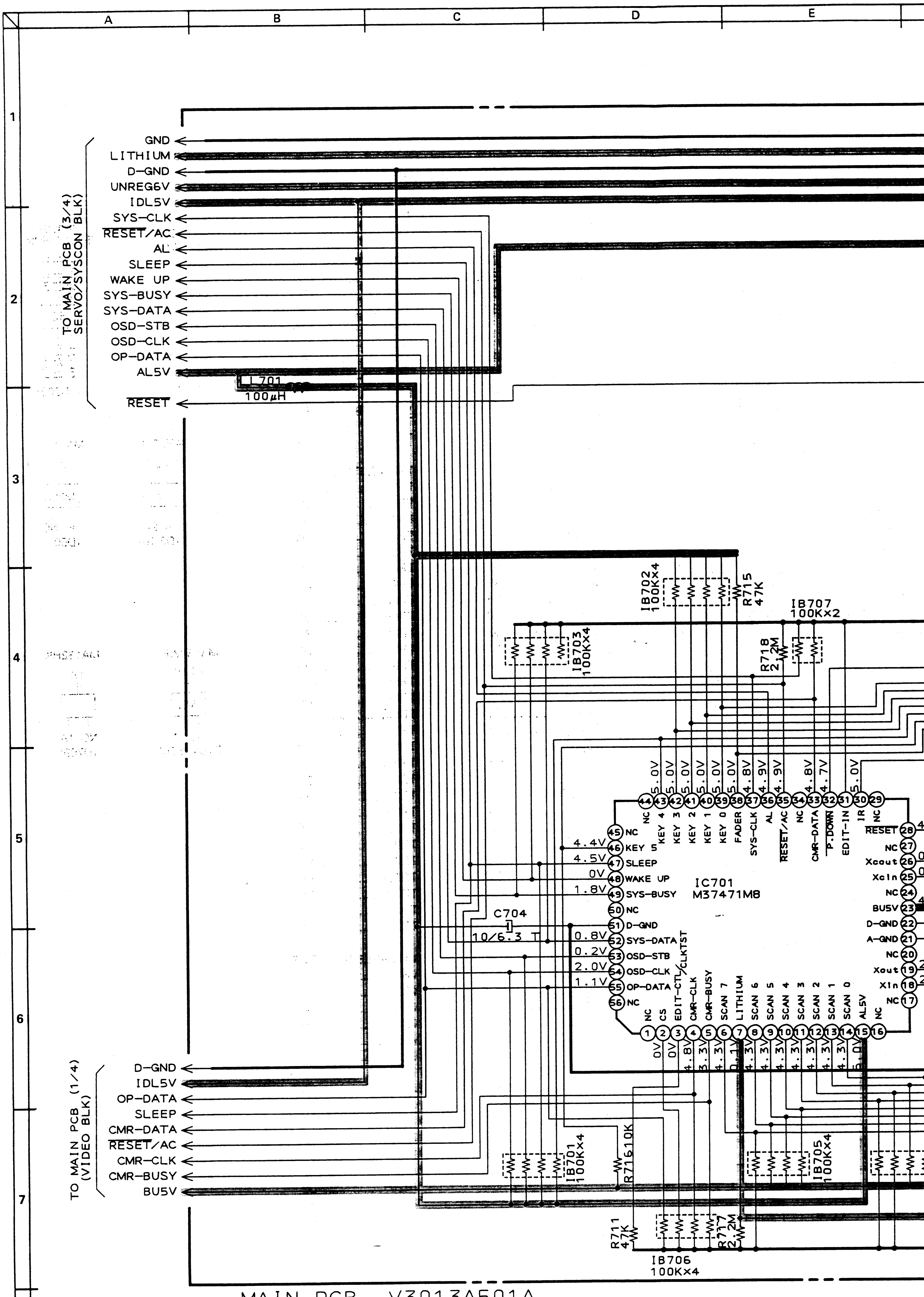

G
H
I
J
K
1
2
3
4
5
6
7
8
TO POWER SUPPLY PCB J709
AL5V
AL
AL5V
Lithium
AL5V
EVF5V
GND
EVFG
GND
UNREG
GND
RESET
D-GND
C-ME
D-GND
UNREG (M)
M-GND
UNREG (M)
M-GND
CM-P
M-GND
CM-P
P309
53268-2290
C401
47/6.3
C368
10/16
L305
C367
10/16
IC306 (2/4)
LA6324NM
R372
R373
100K
R374
R375
62K
2.7K
C351
1000P
R377
220K
C352
10/4
R401
10K
R403
300K
R402 10K
R408
1K
TORQUE LMT
PCI
CBR
C353 0.33
PG COMP
PG OUT
FG OUT
C358
0.027
R407 1K
C356 0.1B
C357 0.018B
PCV 0.5V
SW1.4V
CS
R379 1
R380 1
R381 1
ERROR AMP OUT
PHASE DET
C359 0.1
R382 68K
R383 180K
IC305
NBC5800
R404 6.8
C364 0.1B
R405 6.8
C365 0.1B
R406 6.8
C366 0.1B
TR306
2SB1121
TR307
2SB1121
TR308
2SB1121
R384
1M
C360
82P SL
D302
DA221
R386
1.5M
C362
27PSL
R387
30K
R385
1K
C363
T0.47/25
C361
10/4
R361
47K
C381
0.22
R391
1K
D303
DA221
C382
68P
R393
200K
R392
10K
R395
11K
IC307
LB1851M
GND
FG OUT 2
FG OUT 1
FG IN +
FG IN −
N.C
ANGLE
STB
VCC1
VCC2
VS
W
FWD/REV
BR (START/STOP)
HW−
HW+
HV−
HV+
HU−
HU+
RF
U
V
C384 0.22
C385 0.22
C386 0.22
R396 4.7
R397 4.7
R398 4.7
R400
3.3K
R399
5.6K
P308
HEV−
Hw−
Hw+
Lw
Lw
Hv−
Hv+
Hu−
Hu+
HEV+
Lu
Lu
Lv
Lv
AL5V
GND
FG−
FG+
TO CAPSTAN MOTOR
52396-1890
P307
Lw
Lw
Lv
Lv
Lu
Lu
PG−
PG+
FG+
FG−
TO DRUM MOTOR
52204-1090
R369
47K
R367
220
R368
220
C370
0.01
P312
52396-2390
REC SAF
MP/ME
HI8MP
D-GND
EJECT SW
SS
LED 2
AL5V
LED 1
TRP
LM−
LM−
LM+
LM+
SRP
POS2
POS3
POS1
ES
DEW
D-GND
THICKNESS
LENGTH
RED
SUB PCB ②
TO MECHA BLK
MAIN PCB V3013A501A

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV
ALL INDUCTORS IN μH

B (POWER SUPPLY) LINE
DRUM MOTOR SPEED CONTROL LINE
DRUM MOTOR PHASE CONTROL LINE
CAPSTAN MOTOR SPEED CONTROL LINE
CAPSTAN MOTOR PHASE CONTROL LINE

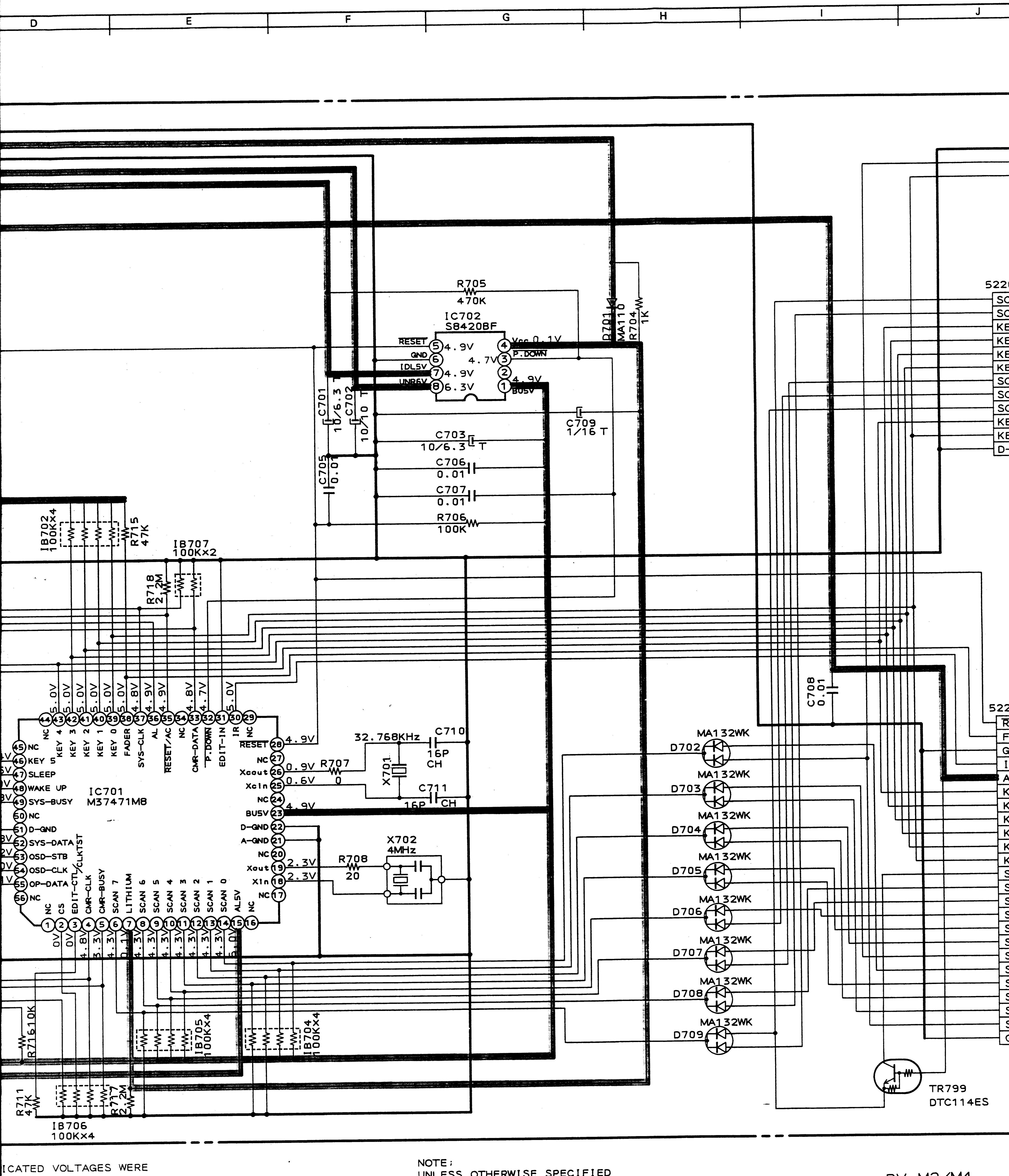
INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
(TAPE SPEED: SP)

PV-M2/M4
MAIN 3/4
(SERVO/SYSCON)
SCHEMATIC DIAGRAM
No.15-10 V301310M
A1


A
B
C
D
E
1
2
3
4
5
6
7
8
TO MAIN PCB (3/4) SERVO/SYSCON BLK)
GND
LITHIUM
D-GND
UNREG6V
IDL5V
SYS-CLK
RESET/AC
AL
SLEEP
WAKE UP
SYS-BUSY
SYS-DATA
OSD-STB
OSD-CLK
OP-DATA
AL5V
RESET
L701
100μH
IB702
100K×4
R715
47K
IB707
100K×2
IB703
100K×4
R718
2.2M
IC701
M37471M8
C704
10/6.3
NC
KEY 4
KEY 3
KEY 2
KEY 1
KEY 0
FADER
SYS-CLK
AL
RESET/AC
NC
CMR-DATA
P.DOWN
EDIT-IN
IR
NC
KEY 5
SLEEP
WAKE UP
SYS-BUSY
D-GND
SYS-DATA
OSD-STB
OSD-CLK
OP-DATA
RESET
Xcout
Xcin
BUSV
A-GND
Xout
Xin
CS
EDIT-CTL/CLKTST
CMR-CLK
CMR-BUSY
SCAN 7
LITHIUM
SCAN 6
SCAN 5
SCAN 4
SCAN 3
SCAN 2
SCAN 1
SCAN 0
AL5V
5.0V
4.8V
4.9V
4.7V
4.4V
4.5V
0V
1.8V
0.8V
0.2V
2.0V
1.1V
3.3V
4.3V
TO MAIN PCB (1/4) (VIDEO BLK)
D-GND
IDL5V
OP-DATA
SLEEP
CMR-DATA
RESET/AC
CMR-CLK
CMR-BUSY
BUSV
IB701
100K×4
R716
10K
IB705
100K×4
R711
47K
R717
2.2M
IB706
100K×4
MAIN PCB V3013A501A

INDICATED VOLTAGES WERE MEASURED DURING PB MODE.
(TAPE SPEED:SP)
(WITHOUT LITHIUM BATTERY)

▬ B (POWER SUPPLY) LINE

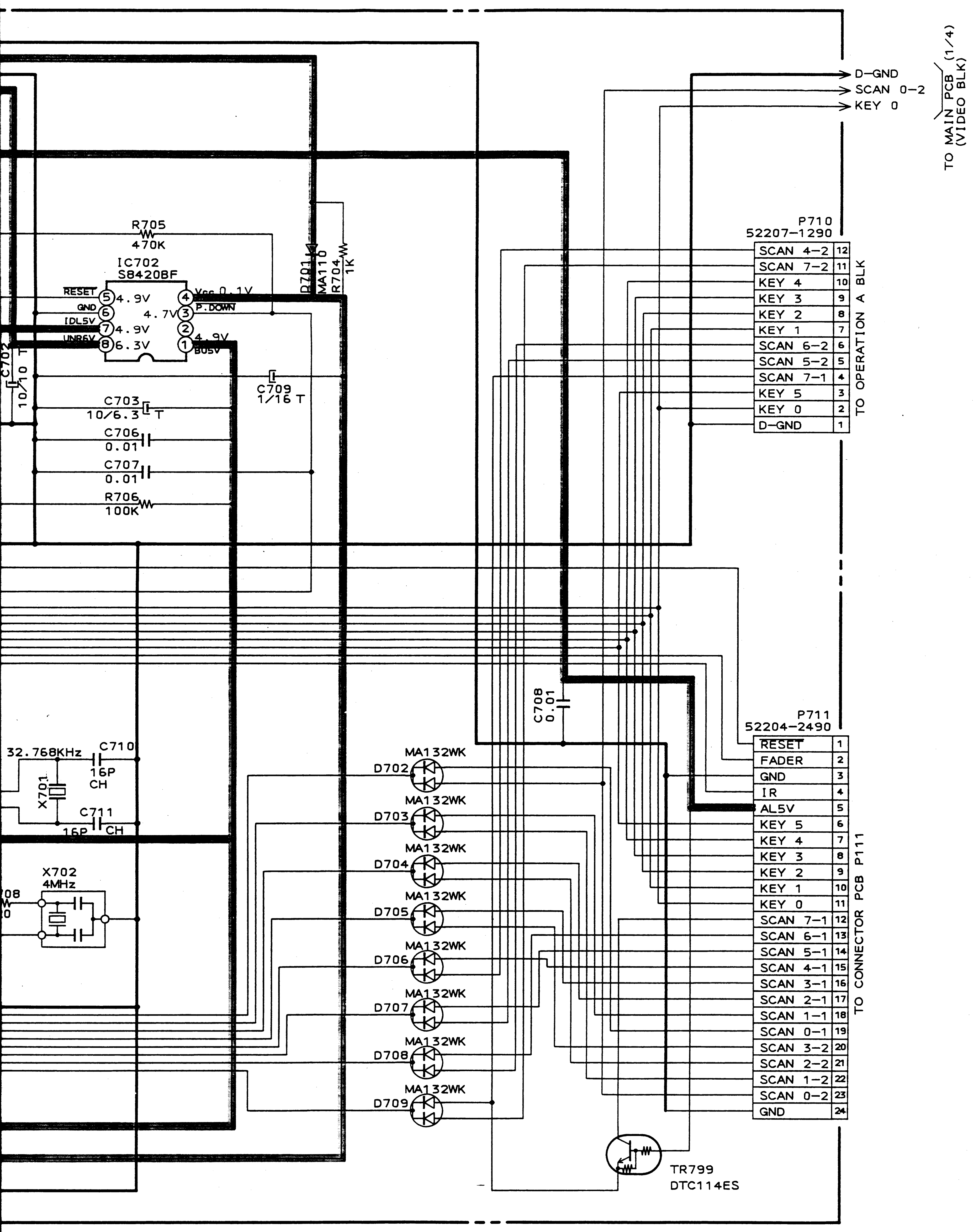

D
E
F
G
H
I
J
R705
470K
IC702
S8420BF
RESET
GND
IDL5V
UNR6V
Vcc 0.1V
P.DOWN
BUSV
4.9V
4.7V
4.9V
6.3V
4.9V
C701
10/6.3 T
C702
10/10 T
C703
10/6.3 T
C705
0.01
C706
0.01
C707
0.01
R706
100K
C709
1/16 T
D701
MA110
R704
1K
IB702
100K×4
R715
47K
IB707
100K×2
R718
2.2M
IC701
M37471M8
NC
KEY 4
KEY 3
KEY 2
KEY 1
KEY 0
FADER
SYS-CLK
AL
RESET/AC
NC
CMR-DATA
P.DOWN
EDIT-IN
IR
NC
KEY 5
SLEEP
WAKE UP
SYS-BUSY
NC
D-GND
SYS-DATA
OSD-STB
OSD-CLK
OP-DATA
NC
CLKTST
RESET
NC
Xcout
Xcin
NC
BUSV
D-GND
A-GND
NC
Xout
Xin
NC
NC
CS
EDIT-CTL
CMR-CLK
CMR-BUSY
SCAN 7
LITHIUM
SCAN 6
SCAN 5
SCAN 4
SCAN 3
SCAN 2
SCAN 1
SCAN 0
AL5V
NC
5.0V
4.8V
4.9V
4.9V
4.8V
4.7V
5.0V
0.9V
0.6V
2.3V
2.3V
0V
0V
4.8V
3.3V
3.3V
4.3V
4.3V
4.3V
4.3V
4.3V
4.3V
4.3V
5.0V
32.768KHz
X701
C710
16P
CH
C711
16P CH
R707
0
X702
4MHz
R708
20
IB705
100K×4
IB704
100K×4
IB706
100K×4
R711
47K
R716
10K
R717
2.2M
C708
0.01
MA132WK
D702
D703
D704
D705
D706
D707
D708
D709
TR799
DTC114ES
522
SC
KE
D-

ICATED VOLTAGES WERE
SURED DURING PB MODE.
PE SPEED:SP)
THOUT LITHIUM BATTERY)

▬ B (POWER SUPPLY) LINE

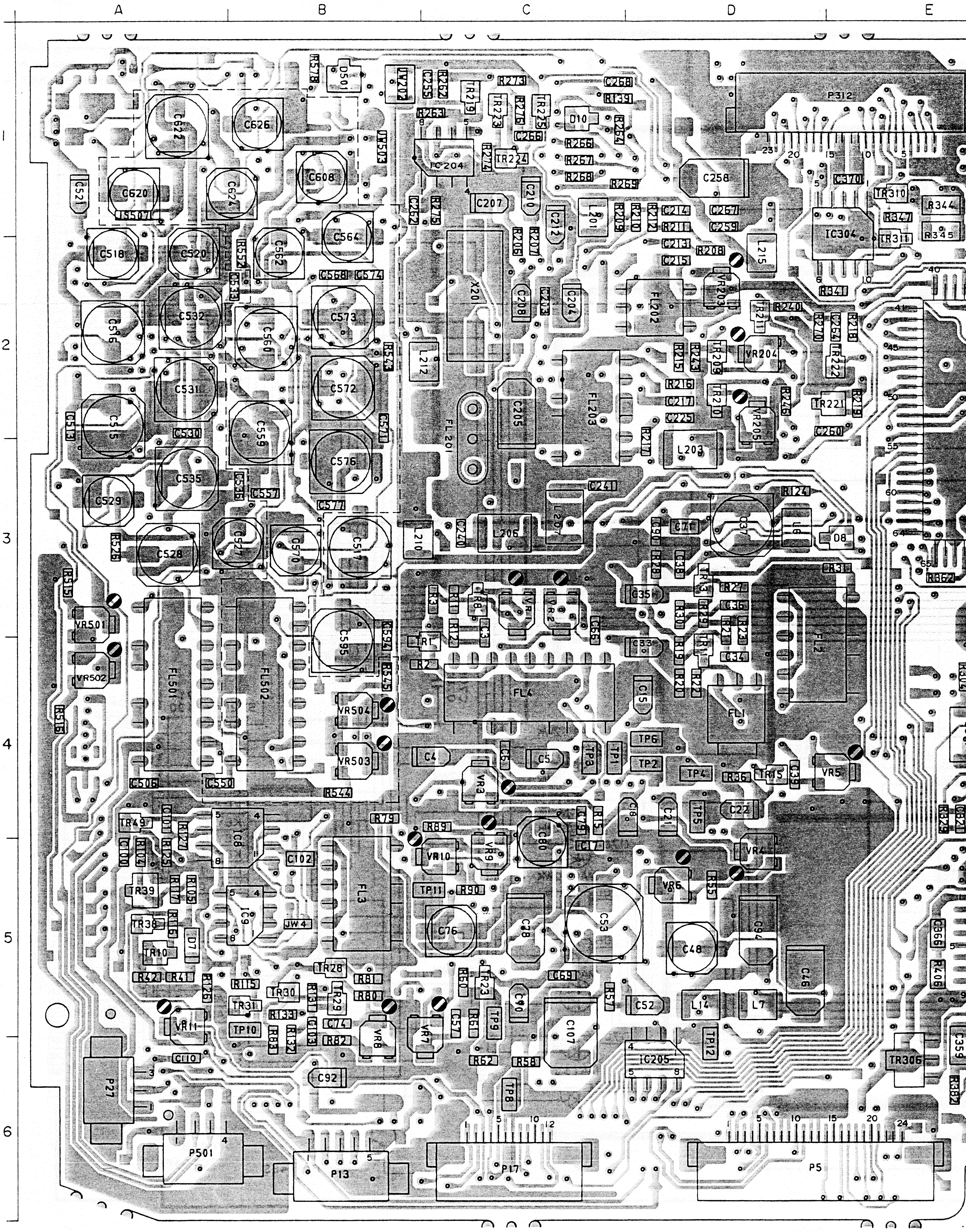
NOTE;
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV

PV-M2/M4
MAIN 4/4
(OPERATION E
SCHEMATIC D
No.15-11 V3


R705
470K
IC702
S8420BF
RESET
GND
IDL5V
UNR6V
4.9V
4.7V
4.9V
6.3V
Vcc 0.1V
P.DOWN
4.9V
BU5V
D701
MA110
R704
1K
C702
10/10 T
C709
1/16 T
C703
10/6.3 T
C706
0.01
C707
0.01
R706
100K
32.768KHz
C710
16P
CH
X701
C711
16P CH
X702
4MHz
08
0
C708
0.01
MA132WK
D702
D703
D704
D705
D706
D707
D708
D709
TR799
DTC114ES
D-GND
SCAN 0-2
KEY 0
TO MAIN PCB (1/4)
(VIDEO BLK)
P710
52207-1290
SCAN 4-2 12
SCAN 7-2 11
KEY 4 10
KEY 3 9
KEY 2 8
KEY 1 7
SCAN 6-2 6
SCAN 5-2 5
SCAN 7-1 4
KEY 5 3
KEY 0 2
D-GND 1
TO OPERATION A BLK
P711
52204-2490
RESET 1
FADER 2
GND 3
IR 4
AL5V 5
KEY 5 6
KEY 4 7
KEY 3 8
KEY 2 9
KEY 1 10
KEY 0 11
SCAN 7-1 12
SCAN 6-1 13
SCAN 5-1 14
SCAN 4-1 15
SCAN 3-1 16
SCAN 2-1 17
SCAN 1-1 18
SCAN 0-1 19
SCAN 3-2 20
SCAN 2-2 21
SCAN 1-2 22
SCAN 0-2 23
GND 24
TO CONNECTOR PCB P111

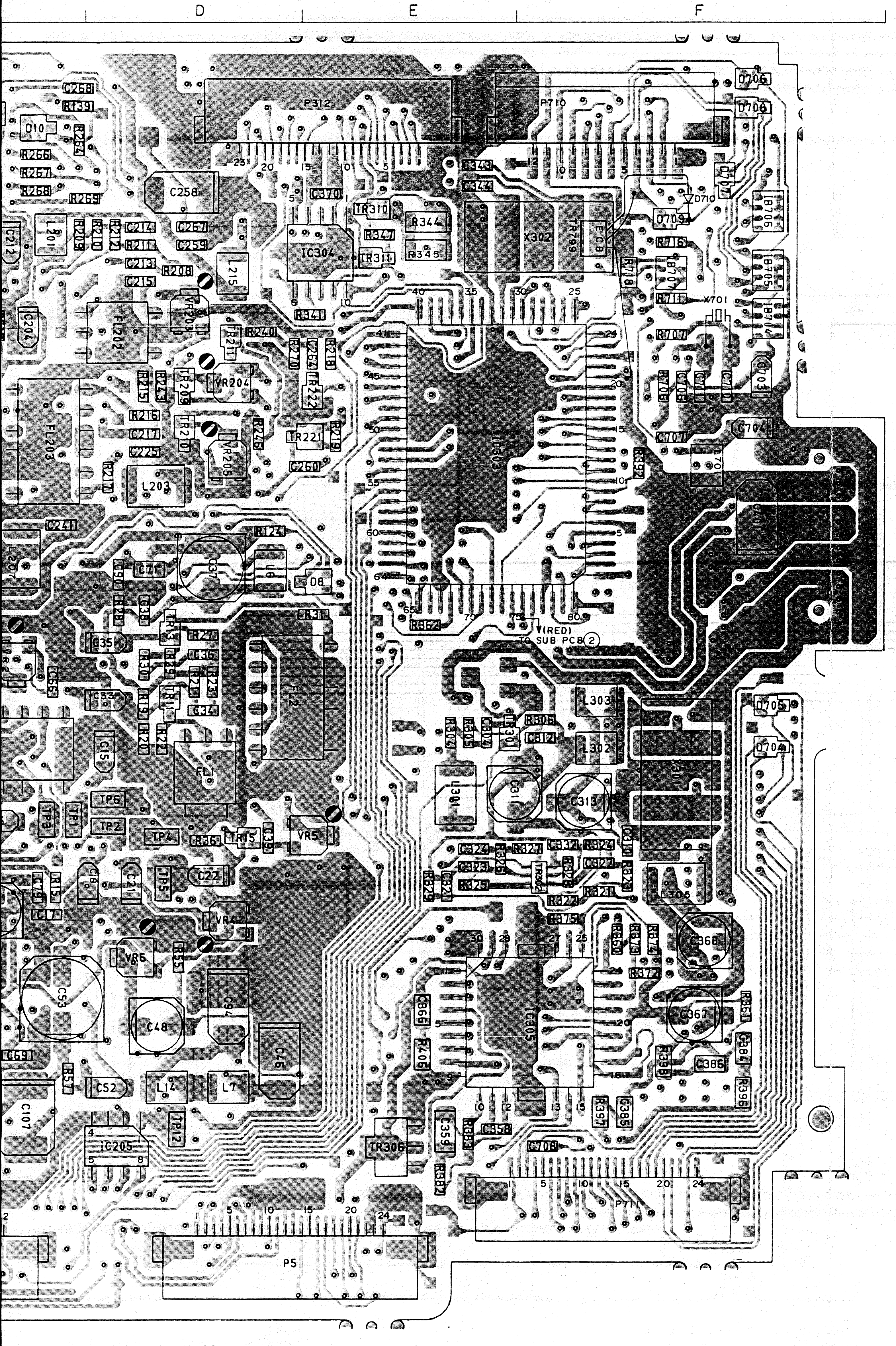
NOTE;
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV

PV-M2/M4
MAIN 4/4
(OPERATION BLK)
SCHEMATIC DIAGRAM
No.15-11 V301311M
A2


A
B
C
D
E
1
2
3
4
5
6

MAIN PCB V3013A501A (BOTTOM)

NOTE : PART
REFE
PART



013A501A (BOTTOM)

NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER.
REFER TO SCHEMATIC DIAGRAMS FOR PERTAINING PARTS INFORMATION.

PRINCIPAL PARTS LOCATION

ICs

IC8	A,B4,5
IC9	B5
IC204	C1
IC205	D6
IC303	E,F2,3
IC304	D,E1,2
IC305	E,F5

DIODEs

D7	A5
D8	E3
D10	C1
D501	B1
D704	F4
D705	F4
D706	F1
D707	F1
D708	F1
D709	F1

FILTERs

FL1	D4
FL2	D,E3,4
FL3	B5
FL4	C4
FL202	D2
FL203	C2
FL501	A3,4
FL502	B3,4

INTEGRATED BLOCKs

IB704	F2
IB705	F2
IB706	F1
IB707	F2

INDUCTORs

L6	D3
L7	D5
L14	D5
L201	C1
L203	D3
L206	C3
L207	C3
L210	C3
L212	B,C2
L215	D2
L301	E4
L302	F4
L303	F4
L305	F4
L701	F2,3

CONNECTORs

P5	D,E6
P13	B6
P17	C6
P27	A6
P312	D,E1
P501	A,B6

X - TALs

X201	C2
X301	F4
X302	E,F1
X701	F2

P710	F1
P711	F6

TEST POINTs

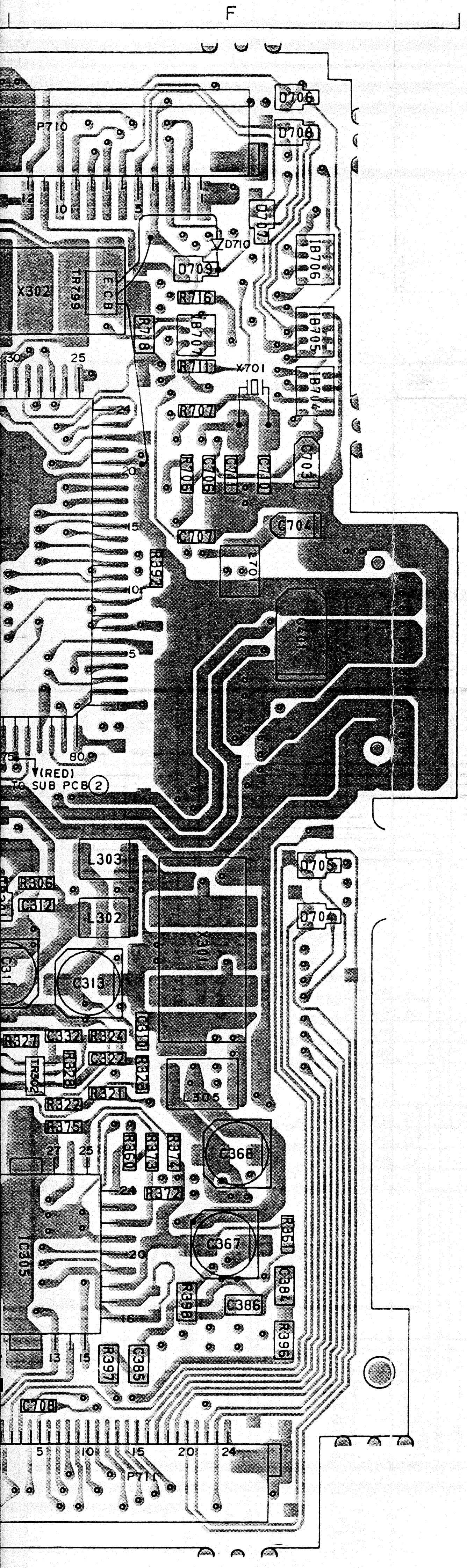
TP1	C4
TP2	D4
TP3	C4
TP4	D4
TP5	D4
TP6	D4
TP8	C6
TP9	C5
TP10	B5
TP11	B,C
TP12	D6

TRANSISTORs

TR1	B,C
TR8	C3
TR10	A5
TR11	D4
TR13	D3
TR15	D4
TR23	C5
TR28	B5
TR29	B5
TR30	B5
TR31	B5
TR38	A5
TR39	A5
TR49	A4
TR209	D2
TR210	D2
TR211	D2
TR219	C1
TR221	E2
TR222	E2
TR223	C1
TR224	C1
TR225	C1
TR301	E4
TR302	F4
TR306	E6
TR310	E1
TR311	E1,

VARIABLE RESISTOR

VR1	C3
VR2	C3
VR3	C4
VR4	D5
VR5	D,E
VR6	D5
VR7	B,C
VR8	B5,
VR9	C5
VR10	C5
VR11	A5
VR203	D2
VR204	D2
VR205	D2
VR501	A3
VR502	A4
VR503	B4
VR504	B4


F
P710
D706
D708
D707
D710
D709
IB706
IB705
IB704
X302
TR799
E C B
R716
R718
R707
R711
X701
R707
C703
C704
C707
R392
L701
IC701
(RED)
TO SUB PCB ②
80
D705
D704
L303
L302
R306
C312
C313
X301
R827
C332
R824
C822
R828
R821
R822
R823
L305
C368
C367
R372
IC305
R398
C386
R351
C384
R396
R397
C385
C708
P711
5
10
15
20
24
25
30

ER DEPENDING ON MODEL NUMBER.
CHEMATIC DIAGRAMS FOR PERTAINING
MATION.

PRINCIPAL PARTS LOCATION

ICs

IC8	A,B4,5
IC9	B5
IC204	C1
IC205	D6
IC303	E,F2,3
IC304	D,E1,2
IC305	E,F5

DIODEs

D7	A5
D8	E3
D10	C1
D501	B1
D704	F4
D705	F4
D706	F1
D707	F1
D708	F1
D709	F1

FILTERs

FL1	D4
FL2	D,E3,4
FL3	B5
FL4	C4
FL202	D2
FL203	C2
FL501	A3,4
FL502	B3,4

INTEGRATED BLOCKs

IB704	F2
IB705	F2
IB706	F1
IB707	F2

INDUCTORs

L6	D3
L7	D5
L14	D5
L201	C1
L203	D3
L206	C3
L207	C3
L210	C3
L212	B,C2
L215	D2
L301	E4
L302	F4
L303	F4
L305	F4
L701	F2,3

CONNECTORs

P5	D,E6
P13	B6
P17	C6
P27	A6
P312	D,E1
P501	A,B6

X - TALs

X201	C2
X301	F4
X302	E,F1
X701	F2

P710	F1
P711	F6

TEST POINTs

TP1	C4
TP2	D4
TP3	C4
TP4	D4
TP5	D4
TP6	D4
TP8	C6
TP9	C5
TP10	B5
TP11	B,C5
TP12	D6

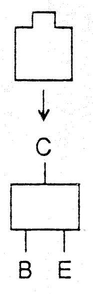
TRANSISTORs

TR1	B,C4
TR8	C3
TR10	A5
TR11	D4
TR13	D3
TR15	D4
TR23	C5
TR28	B5
TR29	B5
TR30	B5
TR31	B5
TR38	A5
TR39	A5
TR49	A4
TR209	D2
TR210	D2
TR211	D2
TR219	C1
TR221	E2
TR222	E2
TR223	C1
TR224	C1
TR225	C1
TR301	E4
TR302	F4
TR306	E6
TR310	E1
TR311	E1,2

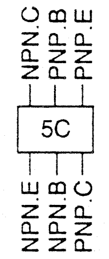
VARIABLE RESISTORs

VR1	C3
VR2	C3
VR3	C4
VR4	D5
VR5	D,E4
VR6	D5
VR7	B,C5,6
VR8	B5,6
VR9	C5
VR10	C5
VR11	A5
VR203	D2
VR204	D2
VR205	D2
VR501	A3
VR502	A4
VR503	B4
VR504	B4

SINGLE CHIP
TRANSISTOR

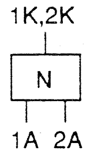


XP4601
(PNP & NPN)


NPN.C
PNP.B
PNP.E
5C
NPN.E
NPN.B
PNP.C

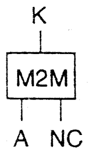
(TR302)

DAN202U



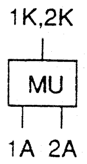
(D8,10)

MA717



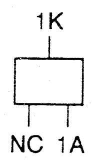
(D501)

MA132WK

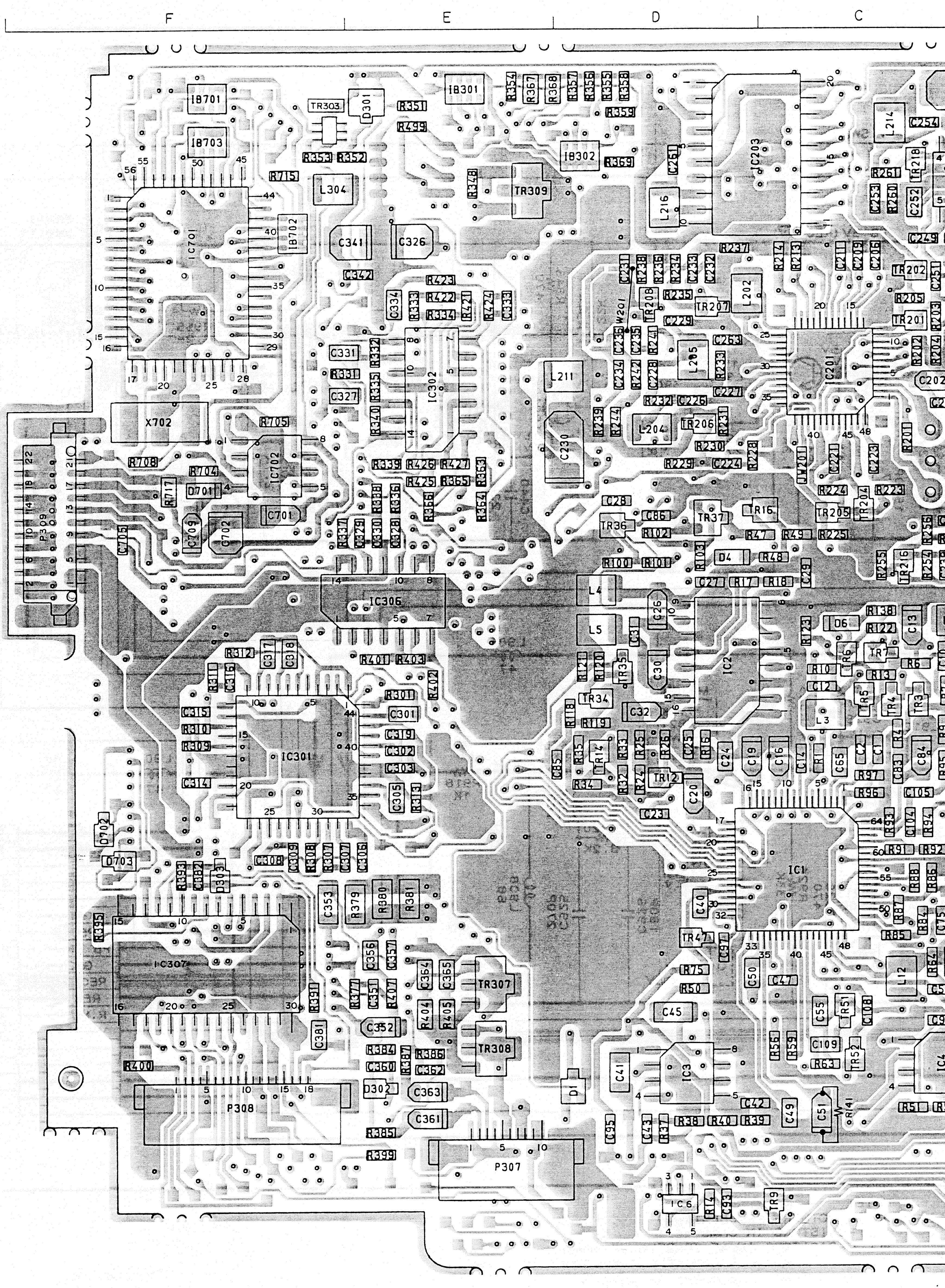

1K,2K
MU
1A 2A

(D704 to 708)

MA132HK

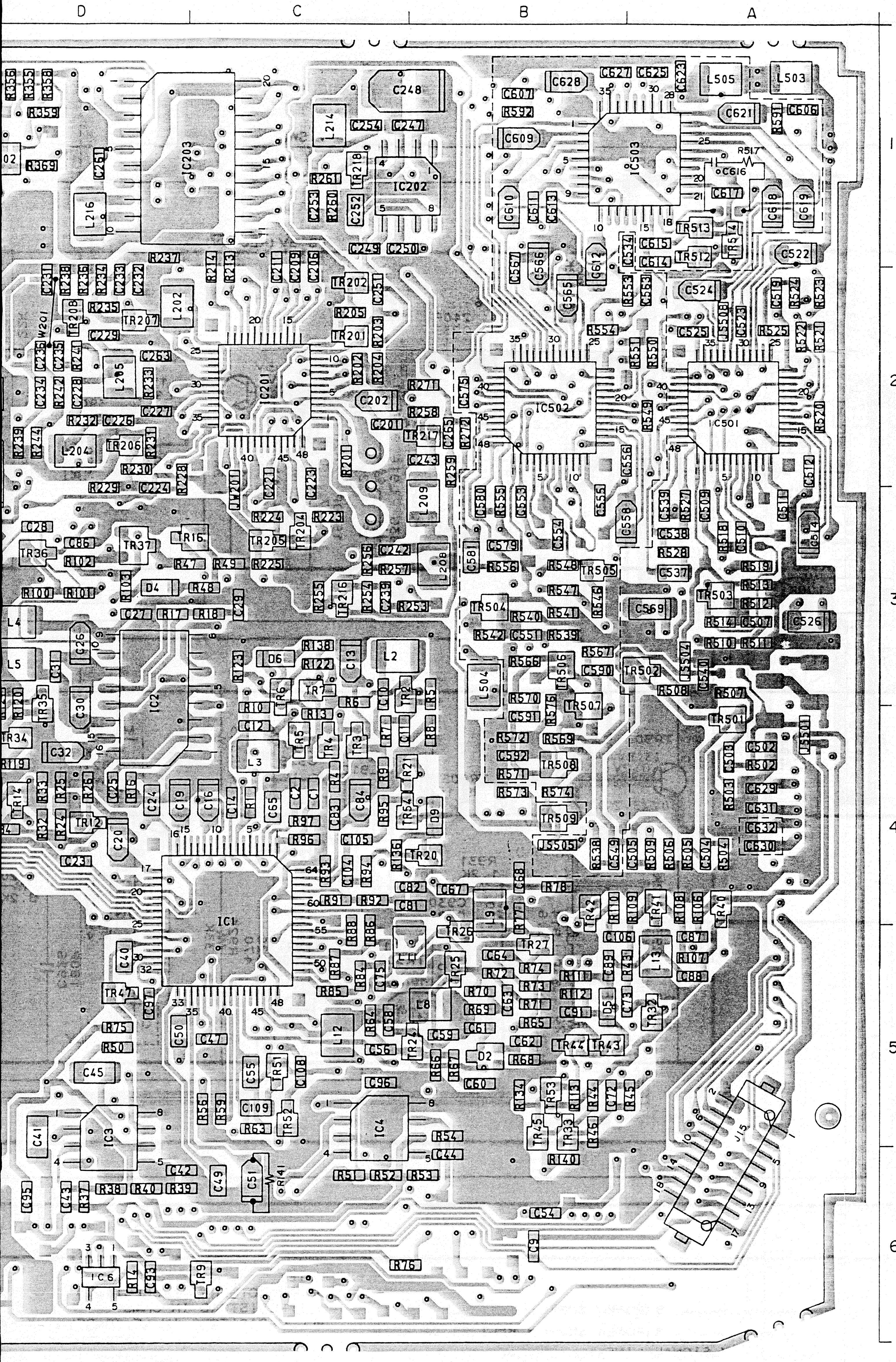


(D709)


F
E
D
C
IB701
IB703
IC701
IB702
TR303
D301
R351
R499
R353
R352
R715
L304
IB301
R354
R367
R368
R357
R356
R355
R358
R359
IB302
R369
R348
TR309
IC203
L214
C254
R261
R260
TR218
C253
C252
L216
C251
C341
C326
C342
R423
R422
R334
R421
R424
C333
C334
R333
C331
R332
R331
C327
R335
R340
IC302
X702
R705
IC702
R708
R704
R711
D701
C701
C709
C702
C705
P309
R339
R426
R427
R425
R365
R363
R366
R364
R337
C329
R338
C328
R336
L211
C230
R237
R214
R213
C211
C219
C216
TR202
R205
R203
TR201
IC201
R202
R204
C202
TR208
W201
R235
TR207
L202
C229
C263
L205
R233
C227
R232
C226
L204
TR206
R231
R230
C224
R229
R228
R201
JW201
C221
C223
R224
R223
TR205
TR204
R225
C28
C86
TR37
TR16
TR36
R102
R47
R49
R100
R101
R103
D4
R48
C27
R17
R18
C29
R255
TR216
R254
L4
L5
C26
C31
IC306
IC2
R138
D6
R122
C13
R123
R10
TR6
TR7
R13
R6
C12
R5
TR4
TR3
L3
R312
C317
C318
R311
C316
R401
R403
R402
R301
C301
C315
R310
R309
C319
C302
C303
IC301
C314
C305
R313
R121
R120
TR35
C30
TR34
C32
R118
R119
C85
R35
TR14
R33
R25
R26
C25
R16
C24
C19
C16
C14
C65
C83
C84
R97
R96
C105
R34
R32
R24
TR12
C20
C23
IC1
R93
C104
R94
R91
R92
R88
R86
R87
R84
C75
C40
TR47
C97
R85
D702
D703
R393
C382
D303
C308
C309
R307
C307
C306
C353
R379
R380
R381
R395
IC307
C356
C357
C364
C365
TR307
R377
C351
R407
C352
R404
R405
R391
C381
TR308
R384
R386
R387
R360
C362
R400
D302
C363
C361
R385
R399
P308
P307
D1
R75
R50
C50
C47
C45
L12
R64
C55
TR51
C108
C41
IC3
R56
R59
C109
R63
TR52
C42
C49
C51
R141
C95
C43
R37
R38
R40
R39
R51
IC4
IC6
R14
C93
TR9

MAIN PCB V3013A501A (TOP)

NO


D
C
B
A
1
2
3
4
5
6
IC1
IC2
IC3
IC4
IC6
IC201
IC202
IC203
IC501
IC502
IC503
J15

PCB V3013A501A (TOP)

NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER.
REFER TO SCHEMATIC DIAGRAMS FOR PERTAINING PARTS INFORMATION.

PRINCIPAL PARTS LOCATION

ICs

IC1	C,D4,5
IC2	D3,4
IC3	D5,6
IC4	C5
IC6	D6
IC201	C2
IC202	B,C1
IC203	C,D1
IC301	F4
IC302	E2
IC306	E,F3
IC307	F5
IC501	A2
IC502	B2
IC503	A,B1
IC701	F1,2
IC702	F2,3

DIODEs

D1	D6
D2	B5
D4	D3
D5	B5
D6	C3
D9	B4
D301	E1
D302	E6
D303	F4,5
D701	F3
D702	F4
D703	F4

INTEGRATED BLOCKs

IB301	E1
IB302	D1
IB701	F1
IB702	F1
IB703	F1

CONNECTORs

J15	A5,6
P307	E6
P308	F6
P309	F3

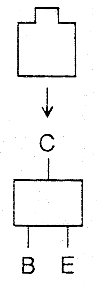
INDUCTORs

L2 ……
L3 ……
L4 ……
L5 ……
L8 ……
L9 ……
L11 ……
L12 ……
L13 ……
L202 ……
L204 ……
L205 ……
L208 ……
L209 ……
L211 ……
L214 ……
L216 ……
L304 ……
L501 ……
L502 ……
L503 ……
L504 ……
L505 ……

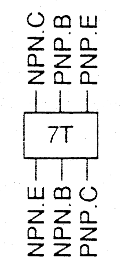
TRANSISTORs

TR2 ……
TR3 ……
TR4 ……
TR5 ……
TR6 ……
TR7 ……
TR9 ……
TR12 ……
TR14 ……
TR16 ……
TR20 ……
TR21 ……
TR24 ……
TR25 ……
TR26 ……
TR27 ……
TR32 ……
TR33 ……
TR34 ……

SINGLE CHIP TRANSISTOR

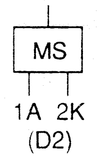


XP4312
NPN WITH RESIST
&
PNP WITH RESIST


NPN.C
PNP.B
PNP.E
7T
NPN.E
NPN.B
PNP.C

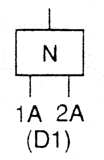
(TR303)

MA147


1K,2A
MS
1A 2K

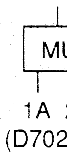
(D2)

DAN202U

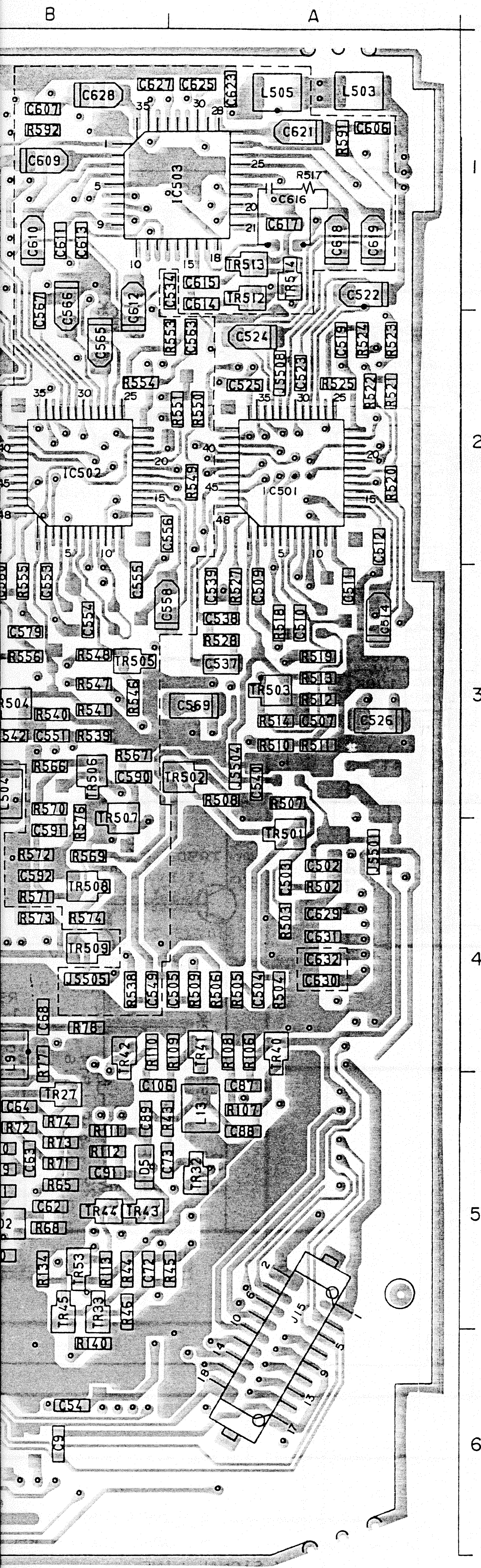


(D1)

MA13



(D702


B
A
1
2
3
4
5
6
L505
L503
C628
C627
C625
C623
C607
R592
C621
C606
R531
C609
IC503
R517
C616
C617
C618
C619
C610
C611
C613
TR513
TR514
C615
C614
TR512
C534
C522
C567
C566
C612
C565
C553
C563
C524
C519
R524
R523
R554
R508
C523
C525
R525
R522
R521
R551
R530
IC502
IC501
R549
R520
C556
C512
C555
C553
C554
C558
C539
R527
C509
R518
C510
C511
C514
C579
C538
R528
R556
R548
TR505
C537
R519
R547
R546
TR503
R513
C569
R512
R504
R540
R541
R514
C507
C526
R542
C551
R539
R510
R511
R566
R567
TR506
C590
TR502
C504
C540
L502
R508
R507
R570
R576
TR507
C591
TR501
R501
R572
R569
C502
C592
TR508
C503
R502
R571
R503
C629
R573
R574
C631
TR509
C632
J5505
R538
C549
C505
R509
R506
R505
C504
R504
C630
C68
R78
L9
R77
TR42
R110
R109
R41
R108
R106
TR40
TR27
C106
C87
C64
R72
R74
C89
L13
R43
R107
C88
R73
R111
R112
C63
R71
D5
C73
C91
TR32
R65
C62
TR44
TR43
R68
R134
TR53
R131
R44
C72
R45
TR45
TR33
R46
R140
J15
C54
C9

PRINCIPAL PARTS LOCATION

ICs

IC1	C,D4,5
IC2	D3,4
IC3	D5,6
IC4	C5
IC6	D6
IC201	C2
IC202	B,C1
IC203	C,D1
IC301	F4
IC302	E2
IC306	E,F3
IC307	F5
IC501	A2
IC502	B2
IC503	A,B1
IC701	F1,2
IC702	F2,3

DIODEs

D1	D6
D2	B5
D4	D3
D5	B5
D6	C3
D9	B4
D301	E1
D302	E6
D303	F4,5
D701	F3
D702	F4
D703	F4

INTEGRATED BLOCKs

IB301	E1
IB302	D1
IB701	F1
IB702	F1
IB703	F1

CONNECTORs

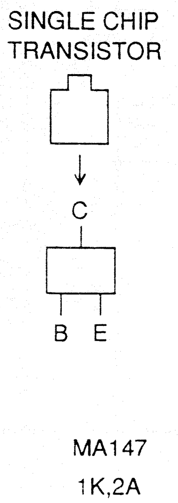
J15	A5,6
P307	E6
P308	F6
P309	F3

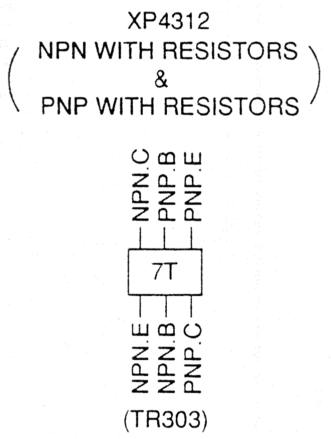
INDUCTORs

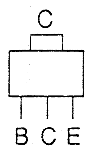
L2	C3
L3	C4
L4	D3
L5	D4
L8	B5
L9	B4
L11	B,C5
L12	C5
L13	A5
L202	D2
L204	D2
L205	D2
L208	B3
L209	B3
L211	D2
L214	C1
L216	D1
L304	F1
L501	A3
L502	A3,4
L503	A1
L504	B3
L505	A1

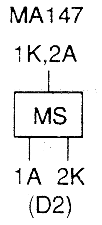
TRANSISTORs

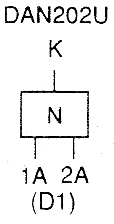
TR2	C3
TR3	C4
TR4	C4
TR5	C4
TR6	C3
TR7	C3
TR9	C6
TR12	D4
TR14	D4
TR16	C,D3
TR20	B4
TR21	C4
TR24	B,C5
TR25	B5
TR26	B5
TR27	B5
TR32	A5
TR33	B5
TR34	D4
TR35	D3,4
TR36	D3
TR37	D3
TR40	A4
TR41	A4
TR42	B4
TR43	B5
TR44	B5
TR45	B5
TR47	D5
TR51	C5
TR52	C5
TR53	B5
TR54	B,C4
TR201	C2
TR202	C2
TR204	C3
TR205	C3
TR206	D2
TR207	D2
TR208	D2
TR216	C3
TR217	B,C2
TR218	C1
TR303	F1
TR307	E5
TR308	E5
TR309	E1
TR501	A4
TR502	A3
TR503	A3
TR504	B3
TR505	B3
TR506	B3
TR507	B3,4
TR508	B4
TR509	B4
TR512	A1
TR513	A1
TR514	A1

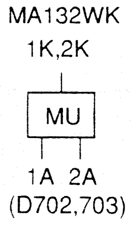

SINGLE CHIP
TRANSISTOR
C
B
E

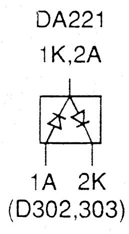

XP4312
NPN WITH RESISTORS
&
PNP WITH RESISTORS
NPN.C
PNP.B
PNP.E
7T
NPN.E
NPN.B
PNP.C
(TR303)

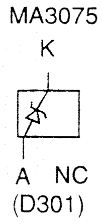



MA147
1K,2A
MS
1A 2K
(D2)

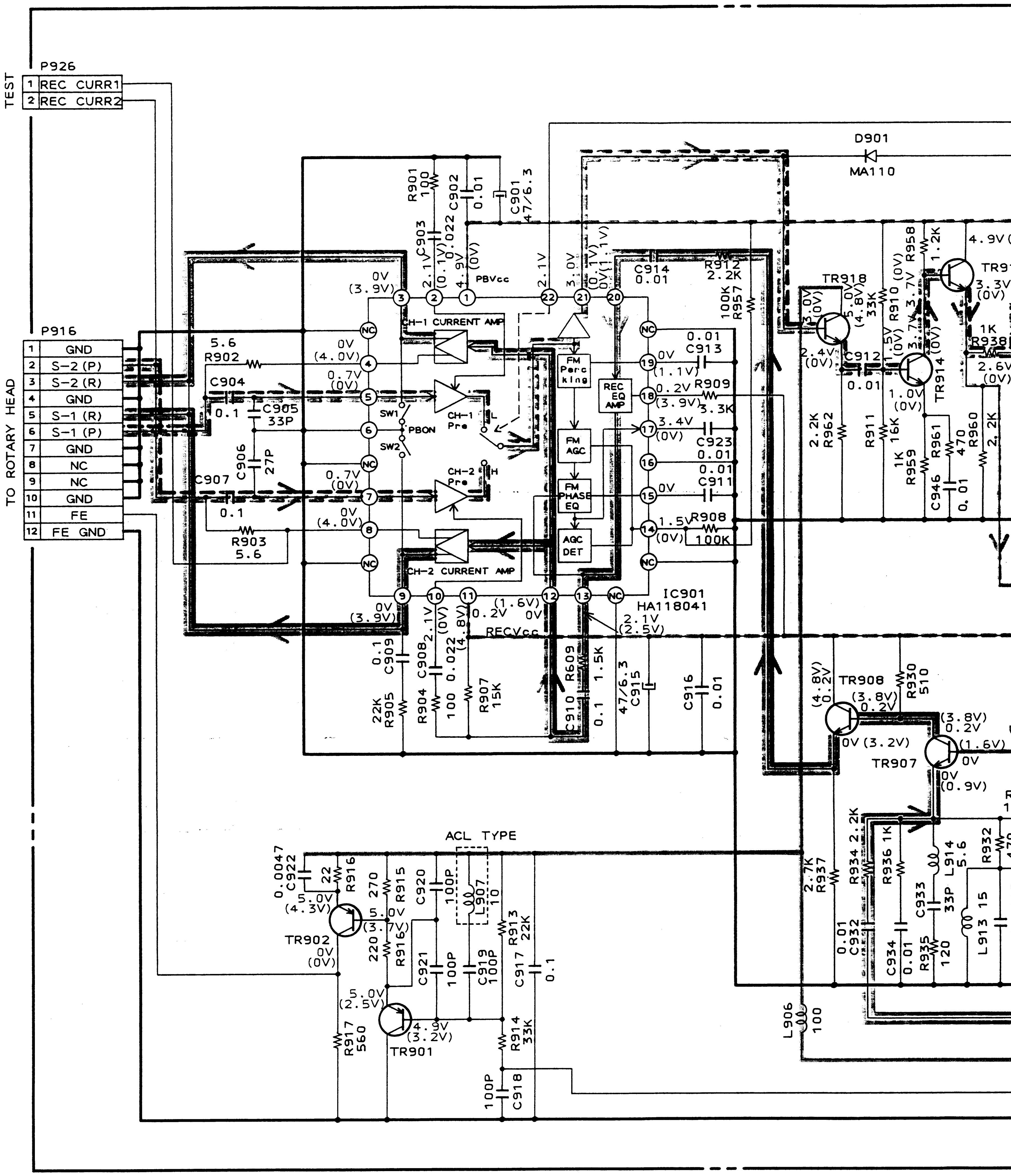

DAN202U
K
N
1A 2A
(D1)


MA132WK
1K,2K
MU
1A 2A
(D702,703)


DA221
1K,2A
1A 2K
(D302,303)

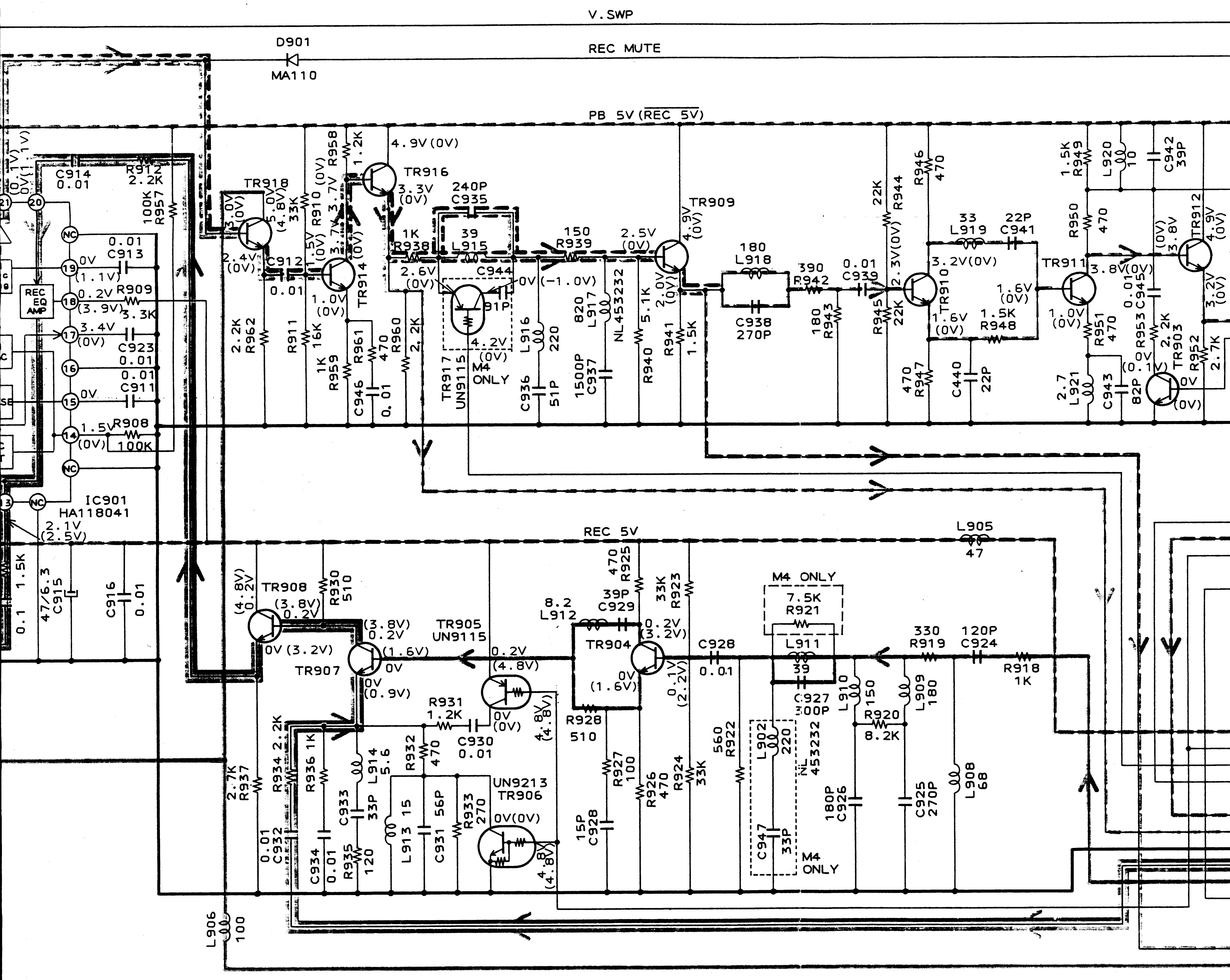

MA3075
K
A NC
(D301)

DIFFER DEPENDING ON MODEL NUMBER.
TO SCHEMATIC DIAGRAMS FOR PERTAINING
NFORMATION.


TEST
P926
1 REC CURR1
2 REC CURR2
P916
1 GND
2 S-2 (P)
3 S-2 (R)
4 GND
5 S-1 (R)
6 S-1 (P)
7 GND
8 NC
9 NC
10 GND
11 FE
12 FE GND
TO ROTARY HEAD
R902 5.6
C904
C905 33P
C906 27P
C907 0.1
R903 5.6
R901 100
C903 0.022
C902 0.01
C901 47/6.3
PBVcc
CH-1 CURRENT AMP
CH-1 Pre
CH-2 Pre
CH-2 CURRENT AMP
SW1
SW2
PBON
FM Pecking
FM AGC
FM PHASE EQ
AGC DET
REC EQ AMP
IC901
HA118041
C914 0.01
R912 2.2K
R957 100K
C913 0.01
R909 3.3K
C923 0.01
C911 0.01
R908 100K
RECVcc
C909 0.1
R905 22K
C908 0.022
R904 100
R907 15K
R609 1.5K
C910 0.1
C915 47/6.3
C916 0.01
D901
MA110
TR918
TR914
TR908
TR907
R958 1.2K
R910 33K
C912 0.01
R962 2.2K
R911 16K
R959 1K
R961 470
C946 0.01
R960 2.2K
R938 1K
R930 510
R937 2.7K
R934 2.2K
R936 1K
L914 5.6
R932 470
C932 0.01
C934 0.01
R935 120
C933 33P
L913 15
L906 100
ACL TYPE
C922 0.0047
R916 22
R915 270
C920 100P
L907 10
R916 220
C921 100P
C919 100P
R913 22K
C917 0.1
TR902
TR901
R917 560
R914 33K
C918 100P

PRE AMP PCB V3013A501B

- ▬ B (POWER SUPPLY) LINE (AL)
- ‒ ‒ B (POWER SUPPLY) LINE (PB OR REC
- ▬ REC Y SIGNAL LINE
- ‒ ‒ PB Y SIGNAL LINE
- ▬ REC CHROMA SIGNAL LINE
- ‒ ‒ PB CHROMA SIGNAL LINE
- ▬ REC ATF/AFM SIGNAL LINE
- ‒ ‒ PB ATF/AFM SIGNAL LINE


V.SWP
D901
MA110
REC MUTE
PB 5V (REC 5V)
TR918
TR916
4.9V(0V)
3.3V (0V)
240P C935
TR914
TR909
1K R938
39 L915
150 R939
2.5V (0V)
2.6V (0V)
C944
0V (-1.0V)
91P
4.2V
TR917 UN9115
M4 ONLY
L916 220
C936 51P
1500P C937
820 L917
NL453232
5.1K R940
R941 1.5K
180 L918
C938 270P
390 R942
180 R943
0.01 C939
22K R944
R946 470
2.3V(0V)
R945 22K
TR910
3.2V(0V)
33 L919
22P C941
1.6V (0V)
1.5K R948
1.6V (0V)
470 R947
C440 22P
1.5K R949
L920 10
C942 39P
R950 470
TR911
3.8V(0V)
1.0V (0V)
R951 470
2.7 L921
C943 82P
0.01 C945
R953 2.2K
TR903
R952 2.7K
TR912
C914 0.01
R912 2.2K
100K R957
0.01 C913
REC EQ AMP
0.2V R909
3.3K
3.4V (0V)
C923 0.01
0.01 C911
1.5V R908 100K
IC901 HA118041
2.1V (2.5V)
1.5K
0.1
47/6.3 C915
C916 0.01
C912 0.01
2.4V (0V)
2.2K R962
R911
1K R959
16K
R961 470
C946 0.01
R960 2.2K
R958 1.2K
33K R910
REC 5V
L905 47
TR908
(4.8V) 0.2V
(3.8V) 0.2V
R930 510
0V (3.2V)
TR907
(3.8V) 0.2V
(1.6V) 0V
0V (0.9V)
TR905 UN9115
0.2V (4.8V)
8.2 L912
39P C929
470 R925
33K R923
TR904
0.2V (3.2V)
0V (1.6V)
0.1V (2.2V)
R928 510
C928 0.01
M4 ONLY
7.5K R921
L911 39
C927 300P
L910 150
R920 8.2K
L909 180
330 R919
120P C924
R918 1K
L908 68
C925 270P
180P C926
L902 220
NL 453232
C947 33P
M4 ONLY
560 R922
R931 1.2K
C930 0.01
0V (0V)
4.8V (4.8V)
UN9213 TR906
0V(0V)
R933 270
C931 56P
L913 15
R932 470
L914 5.6
C933 33P
R935 120
C934 0.01
0.01 C932
R936 1K
R934 2.2K
2.7K R937
15P C928
R927 100
R926 470
R924 33K
L906 100

━━━━━━ B (POWER SUPPLY) LINE (AL)

━ ━ ━ ━ B (POWER SUPPLY) LINE (PB OR REC)

━━━━━━ REC Y SIGNAL LINE

━ ━ ━ ━ PB Y SIGNAL LINE

━━━━━━ REC CHROMA SIGNAL LINE

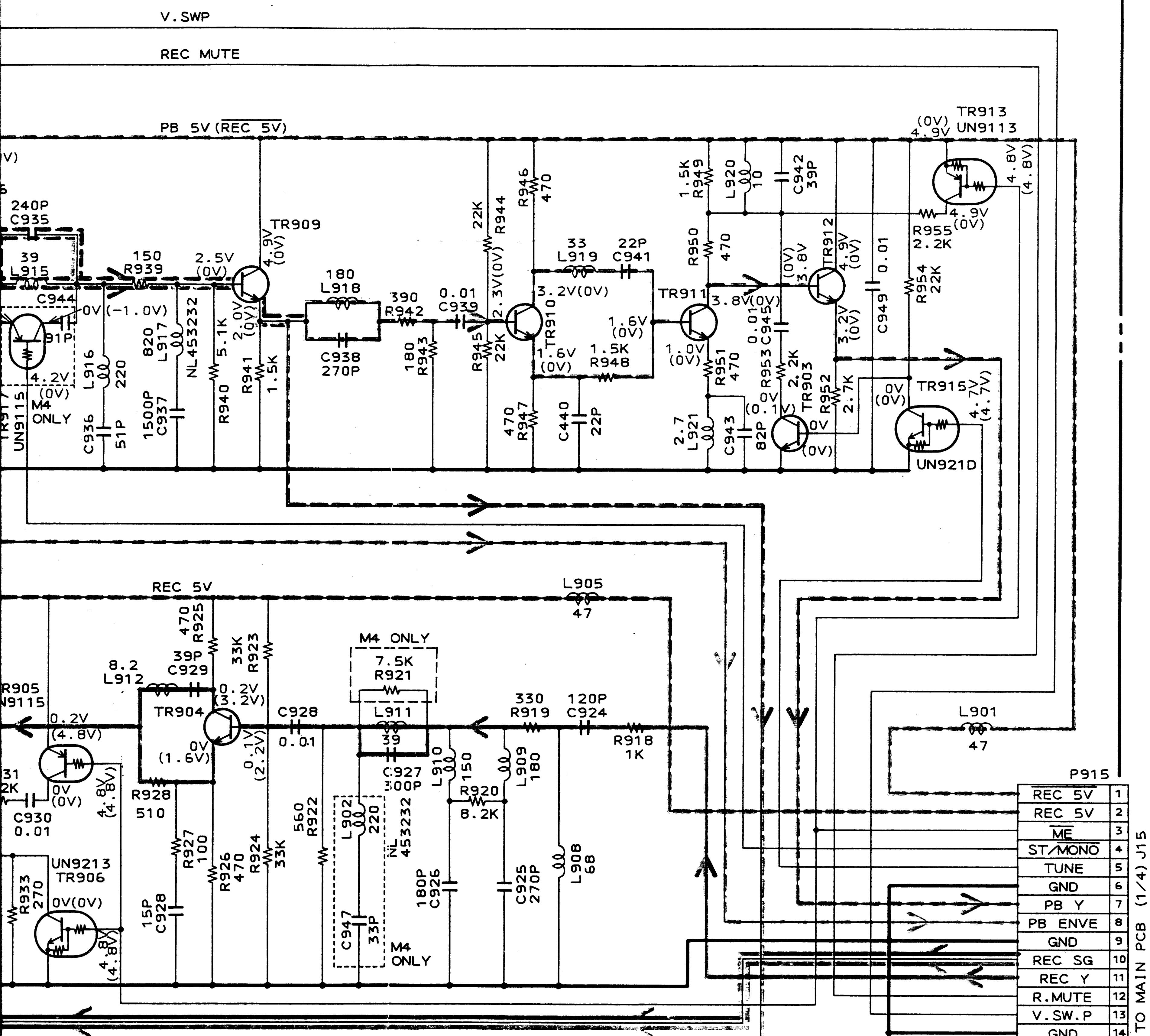
━ ━ ━ ━ PB CHROMA SIGNAL LINE

━━━━━━ REC ATF/AFM SIGNAL LINE

━ ━ ━ ━ PB ATF/AFM SIGNAL LINE

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV
ALL INDUCTORS IN μH (K)
ALL PNP TRANSISTORS ARE 2SB1462 (R, S)
ALL NPN TRANSISTORS ARE 2SD2216 (R, S)

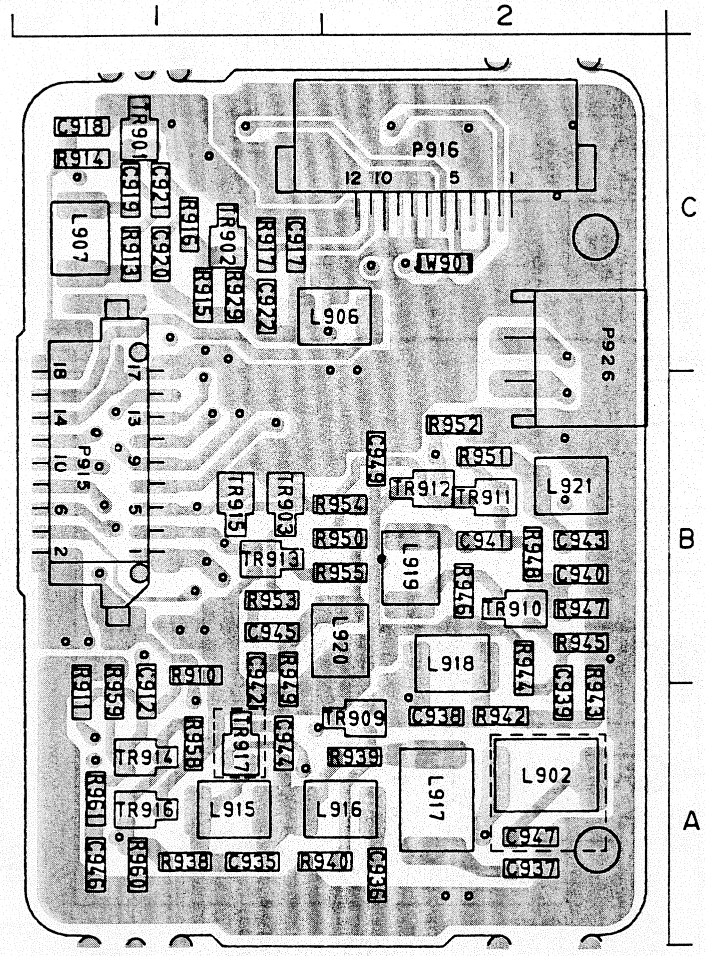
INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
( ) : REC MODE


V.SWP
REC MUTE
PB 5V (REC 5V)
240P
C935
39
L915
C944
91P
150
R939
2.5V
(0V)
TR909
4.9V
(0V)
2.0V
(0V)
0V
(-1.0V)
820
L917
NL453232
L916
220
5.1K
R940
R941
1.5K
4.2V
(0V)
M4
ONLY
UN9115
C936
51P
1500P
C937
180
L918
C938
270P
390
R942
0.01
C939
180
R943
22K
R944
R945
22K
2.3V(0V)
R946
470
33
L919
22P
C941
3.2V(0V)
TR910
1.6V
(0V)
1.6V
(0V)
1.5K
R948
470
R947
C440
22P
1.5K
R949
L920
10
C942
39P
R950
470
TR911
3.8V(0V)
1.0V
(0V)
R951
470
0.01
C945
R953
2.2K
TR903
2.7
L921
C943
82P
(0.1V)
0V
(0V)
(0V)
3.8V
TR912
4.9V
(0V)
3.2V
(0V)
0.01
C949
R952
2.7K
R954
22K
R955
2.2K
4.9V
(0V)
(0V)
4.9V
TR913
UN9113
4.8V
(4.8V)
0V
(0V)
TR915
4.7V
(4.7V)
UN921D
REC 5V
L905
47
470
R925
33K
R923
39P
C929
8.2
L912
R905
UN9115
0.2V
(4.8V)
TR904
0.2V
(3.2V)
0V
(1.6V)
C928
0.01
0.1V
(2.2V)
R928
510
0V
(0V)
C930
0.01
4.8V
(4.8V)
M4 ONLY
7.5K
R921
L911
39
C927
300P
L910
150
R920
8.2K
330
R919
120P
C924
R918
1K
L909
180
560
R922
L902
220
NL453232
C947
33P
M4
ONLY
180P
C926
C925
270P
L908
68
R927
100
R926
470
R924
33K
15P
C928
R933
270
UN9213
TR906
0V(0V)
4.8V
(4.8V)
L901
47
P915
REC 5V 1
REC 5V 2
ME 3
ST/MONO 4
TUNE 5
GND 6
PB Y 7
PB ENVE 8
GND 9
REC SG 10
REC Y 11
R.MUTE 12
V.SW.P 13
GND 14
PB C 15
AL 5V 16
GND 17
FE ON 18
TO MAIN PCB (1/4) J15

NOTE;
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV
ALL INDUCTORS IN μH (K)
ALL PNP TRANSISTORS ARE 2SB1462 (R, S)
ALL NPN TRANSISTORS ARE 2SD2216 (R, S)

INDICATED VOLTAGES WERE
MEASURED DURING PB MODE.
( ) : REC MODE

PV-M2/M4
PRE AMP
SCHEMATIC DIAGRAM
No.15-12 V301312M
A2


1
2
C
B
A
P916
P915
P926
IC901
L902
L906
L907
L915
L916
L917
L918
L919
L920
L921
TR901
TR902
TR903
TR909
TR910
TR911
TR912
TR913
TR914
TR915
TR916
TR917

PRE AMP PCB V3013A501B(BOTTOM)

NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER. REFER TO SCHEMATIC DIAGRAMS FOR PERTAINING PARTS INFORMATION.

PRINCIPAL PARTS LOCATION

IC

IC901	C1

DIODE

D901	B1

CONNECTORs

P915	B1
P916	C2
P926	B,C2

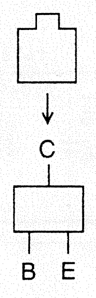
INDUCTORs

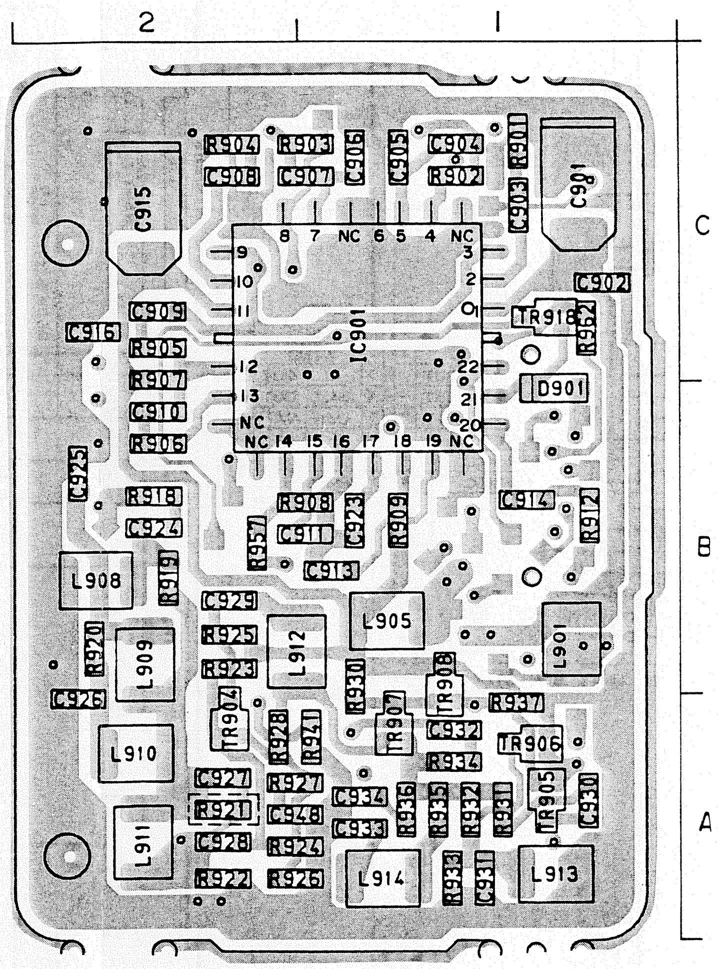
L901	B1
L902	A2
L905	B1
L906	C2
L907	C1
L908	B2
L909	B2
L910	A2
L911	A2
L912	B1,2
L913	A1
L914	A1
L915	A1
L916	A2
L917	A2
L918	B2
L919	B2
L920	B2
L921	B2

TRANSISTORs

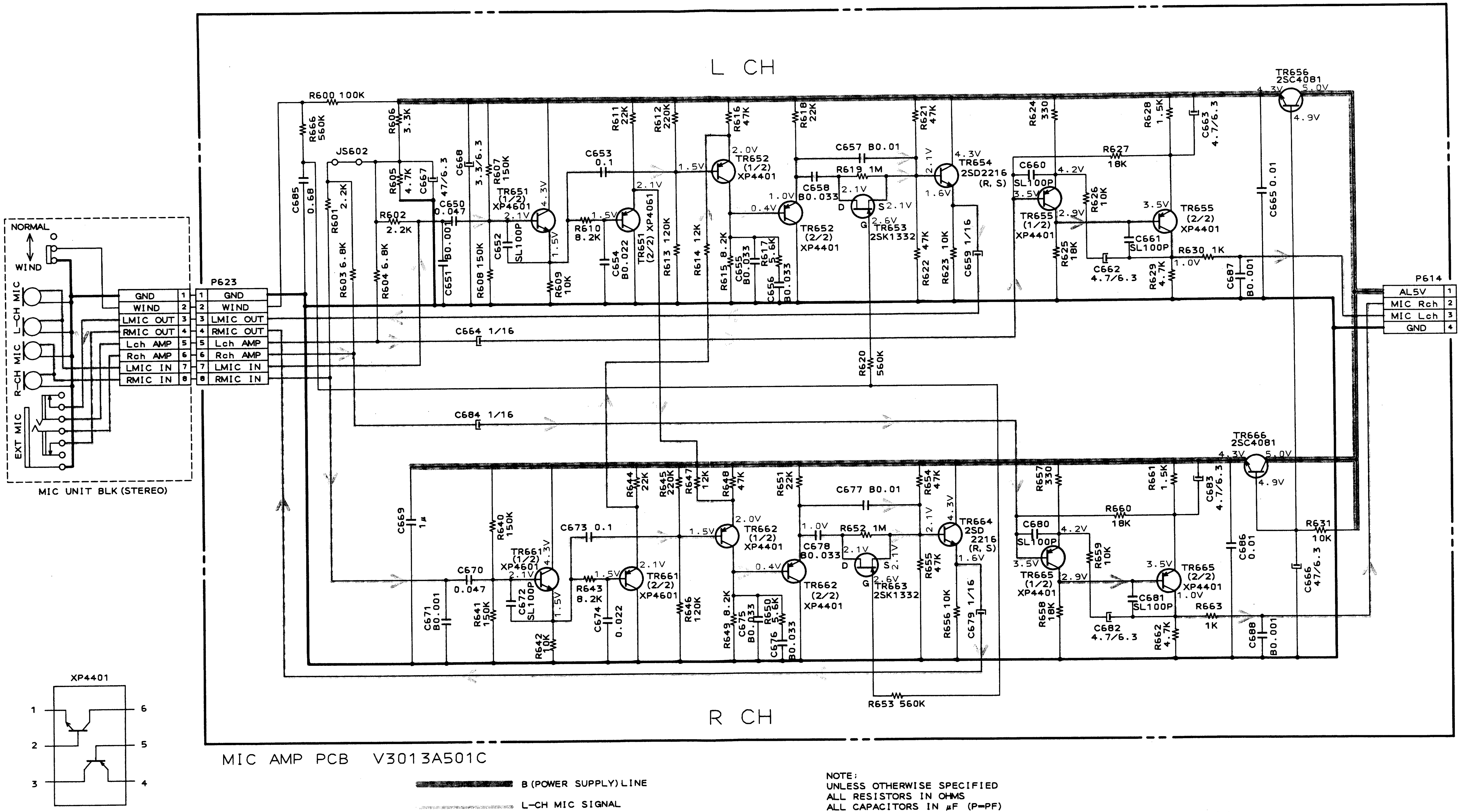
TR901	C1
TR902	C1
TR903	B1
TR904	A2
TR905	A1
TR906	A1
TR907	A1
TR908	A,B1
TR909	A2
TR910	B2
TR911	B2
TR912	B2
TR913	B1
TR914	A1
TR915	B1
TR916	A1
TR917	A1
TR918	C1

SINGLE CHIP TRANSISTOR




2
1
C
B
A
IC901
D901
L901
L905
L908
L909
L910
L911
L912
L913
L914
TR904
TR905
TR906
TR907
TR908
TR918

PRE AMP PCB V3013A501B(TOP)


L CH
R CH
MIC UNIT BLK (STEREO)
NORMAL
WIND
L-CH MIC
R-CH MIC
EXT MIC
JS602
P623
1 GND
2 WIND
3 LMIC OUT
4 RMIC OUT
5 Lch AMP
6 Rch AMP
7 LMIC IN
8 RMIC IN
P614
1 AL5V
2 MIC Rch
3 MIC Lch
4 GND
TO MAIN PCB (2/4) P501
TR651 (1/2) XP4601
TR651 (2/2) XP4061
TR652 (1/2) XP4401
TR652 (2/2) XP4401
TR653 2SK1332
TR654 2SD2216 (R, S)
TR655 (1/2) XP4401
TR655 (2/2) XP4401
TR656 2SC4081
TR661 (1/2) XP4601
TR661 (2/2) XP4601
TR662 (1/2) XP4401
TR662 (2/2) XP4401
TR663 2SK1332
TR664 2SD 2216 (R, S)
TR665 (1/2) XP4401
TR665 (2/2) XP4401
TR666 2SC4081
R600 100K
R620 560K
R653 560K
C664 1/16
C684 1/16

MIC AMP PCB V3013A501C

XP4401
1
2
3
4
5
6

▬ B (POWER SUPPLY) LINE

▬ L-CH MIC SIGNAL

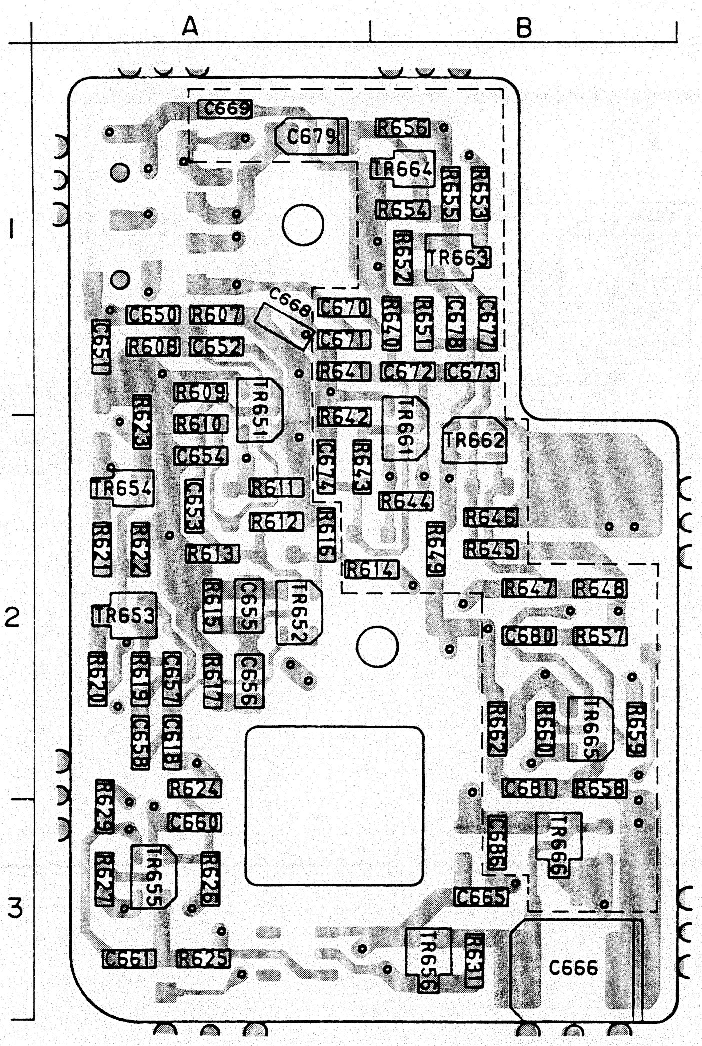
▬ R-CH MIC SIGNAL

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV

INDICATED VOLTAGES WERE MEASURED
DURING REC MODE.

PV-M4
MIC AMP
SCHEMATIC DIAGRAM

No.15-13 V301313M
A2


A
B
1
2
3
C669
C679
R656
TR664
R653
R655
R654
R652
TR663
C650
R607
C668
C670
R640
R651
C678
C677
C651
R608
C652
C671
R641
C672
C673
R609
TR651
R610
R642
TR661
TR662
R623
C654
C674
R643
TR654
R611
R644
R621
R622
C653
R612
R616
R646
R613
R614
R647
R645
R615
C655
TR652
R647
R648
TR653
C680
R657
R619
C657
R617
C656
R620
C618
R662
R660
TR665
R659
R618
C658
R624
C681
R658
R629
C660
C686
TR666
TR655
R626
R627
C665
C661
R625
TR656
R631
C666

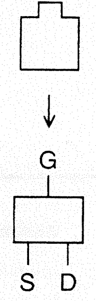
MIC AMP PCB V3013A501C (BOTTOM)

PRINCIPAL PARTS LOCATION

TRANSISTORs

TR651	A1,2
TR652	A2
TR653	A2
TR654	A2
TR655	A3
TR656	B3
TR661	B1,2
TR662	B2
TR663	B1
TR664	B1
TR665	B3
TR666	B3

SINGLE CHIP TRANSISTOR



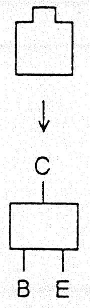
(TR653,TR663)

PRINCIPAL PARTS LOCATION

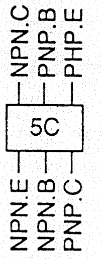
CONNECTORs

P614	B3
P623	A1

SINGLE CHIP TRANSISTOR

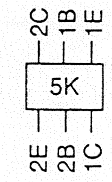


XP4601
(PNP & NPN)


NPN.C
PNP.B
PHP.E
5C
NPN.E
NPN.B
PNP.C

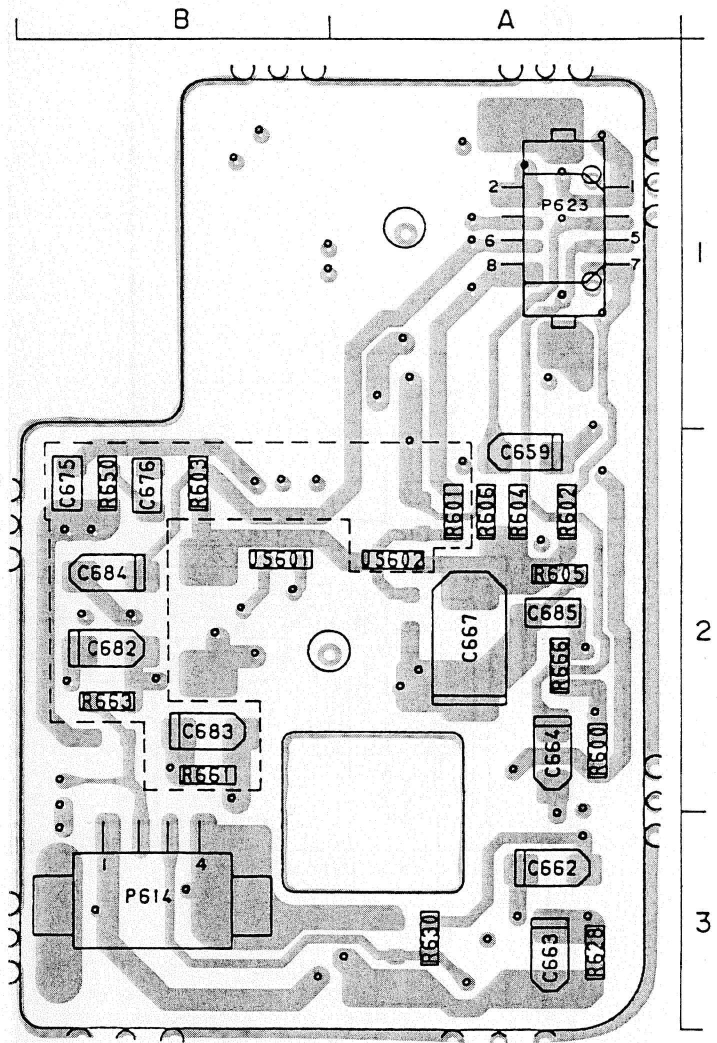
(TR651
TR661)

XP4401
(PNP x 2)

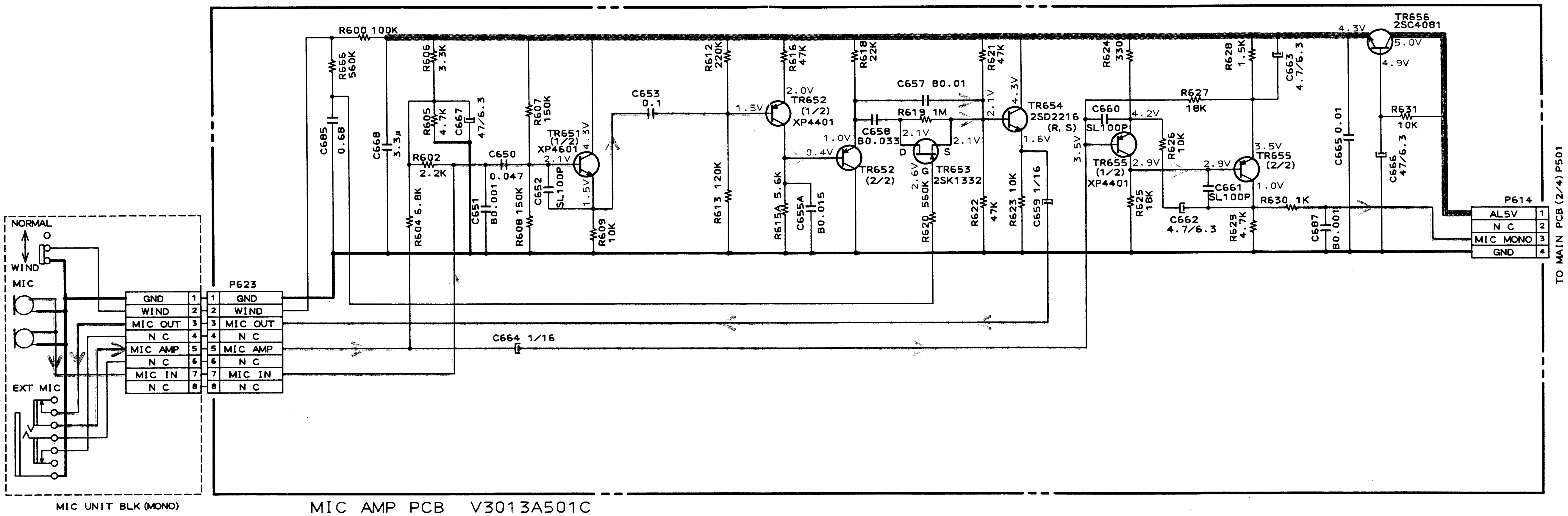

2C
1B
1E
5K
2E
2B
1C

(TR652,TR655
TR662,TR665)

NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER. REFER TO SCHEMATIC DIAGRAMS FOR PERTAINING PARTS INFORMATION.


B
A
1
2
3
P623
2
1
6
5
8
7
C659
C675
R650
C676
R603
R601
R606
R604
R602
JS601
JS602
C684
R605
C667
C685
C682
R656
R663
C683
R661
C664
R600
1
4
P614
C662
R630
C663
R628

MIC AMP PCB V3013A501C(TOP)


NORMAL
WIND
MIC
EXT MIC
MIC UNIT BLK (MONO)
P623
GND
WIND
MIC OUT
N C
MIC AMP
N C
MIC IN
N C
R600 100K
R666 560K
C685 0.68
C668 3.3μ
R606 3.3K
R605 4.7K
C667 47/6.3
R602 2.2K
R604 6.8K
C651 B0.001
C650 0.047
R608 150K
R607 150K
C652 SL100P
TR651 (1/2) XP4601
R609 10K
C653 0.1
R612 220K
R613 120K
R616 47K
TR652 (1/2) XP4401
TR652 (2/2)
R615A 5.6K
C655A B0.015
R618 22K
C657 B0.01
C658 B0.033
R619 1M
TR653 2SK1332
R620 560K
R621 47K
R622 47K
R623 10K
C659 1/16
TR654 2SD2216 (R, S)
R624 330
C660 SL100P
TR655 (1/2) XP4401
R625 18K
R626 10K
R627 18K
R628 1.5K
C663 4.7/6.3
TR655 (2/2)
C661 SL100P
C662 4.7/6.3
R629 4.7K
R630 1K
C687 B0.001
C665 0.01
R631 10K
C666 47/6.3
TR656 2SC4081
P614
AL5V
N C
MIC MONO
GND
TO MAIN PCB (2/4) P501
C664 1/16
MIC AMP PCB V3013A501C

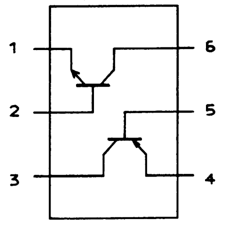
NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS
ALL CAPACITORS IN μF (P=PF)
ALL ELECTROLYTIC CAPACITORS IN μF/WV

INDICATED VOLTAGES WERE MEASURED
DURING REC MODE.

▬ B (POWER SUPPLY) LINE

▭ MIC SIGNAL LINE

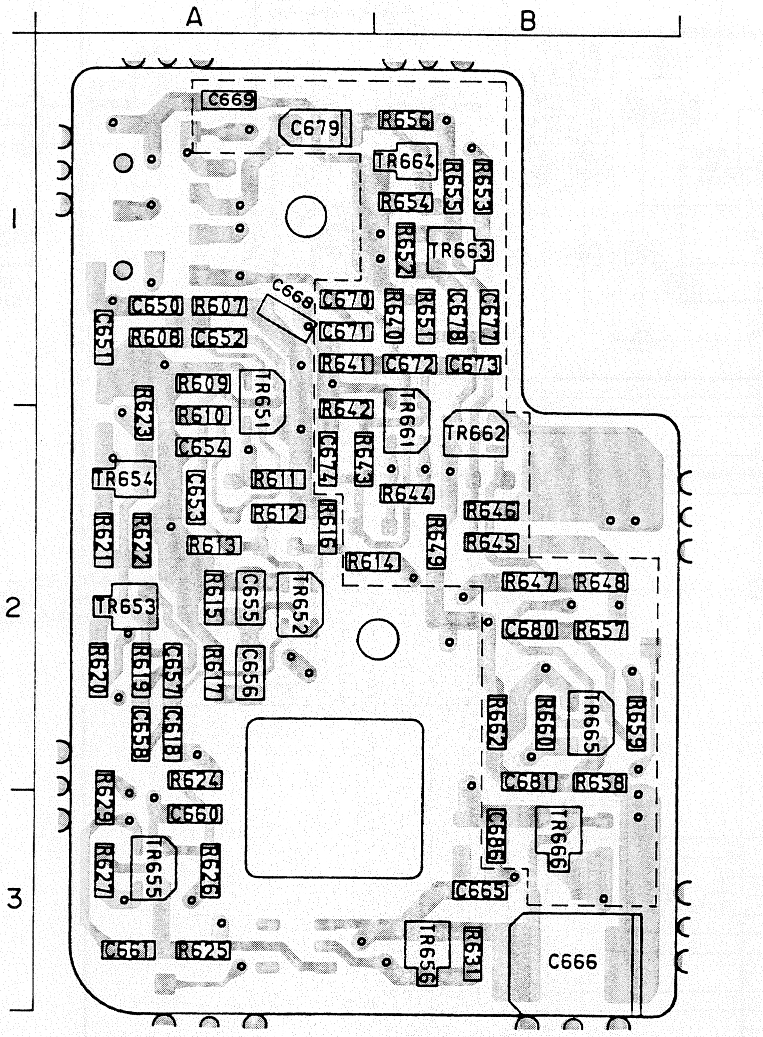
XP4401



PV−M2
MIC AMP (MONO)
SCHEMATIC DIAGRAM

No.15−14 V301314M

A2


A
B
1
2
3
C669
C679
R656
TR664
R655
R653
R654
R652
TR663
C668
C650
R607
C670
R640
R651
C678
C677
C651
R608
C652
C671
R641
C672
C673
R609
TR651
R642
TR661
R623
R610
TR662
C654
C674
R643
TR654
R611
R644
R646
C653
R612
R616
R649
R622
R621
R613
R614
R645
R647
R648
TR653
R615
C655
TR652
C680
R657
R619
C657
R617
C656
R620
C658
C618
R662
R660
TR665
R659
R624
C681
R658
R629
C660
C685
TR666
TR655
R626
R627
C665
C661
R625
TR656
R631
C666

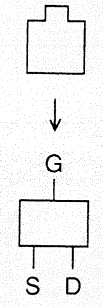
MIC AMP PCB V3013A501C (BOTTOM)

PRINCIPAL PARTS LOCATION

TRANSISTORs

TR651	A1,2
TR652	A2
TR653	A2
TR654	A2
TR655	A3
TR656	B3
TR661	B1,2
TR662	B2
TR663	B1
TR664	B1
TR665	B3
TR666	B3

SINGLE CHIP TRANSISTOR



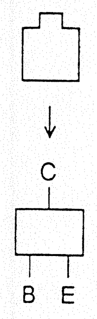
(TR653,TR663)

PRINCIPAL PARTS LOCATION

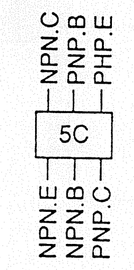
CONNECTORs

P614	B3
P623	A1

SINGLE CHIP TRANSISTOR

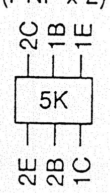


XP4601
(PNP & NPN)


NPN.C
PNP.B
PHP.E
5C
NPN.E
NPN.B
PNP.C

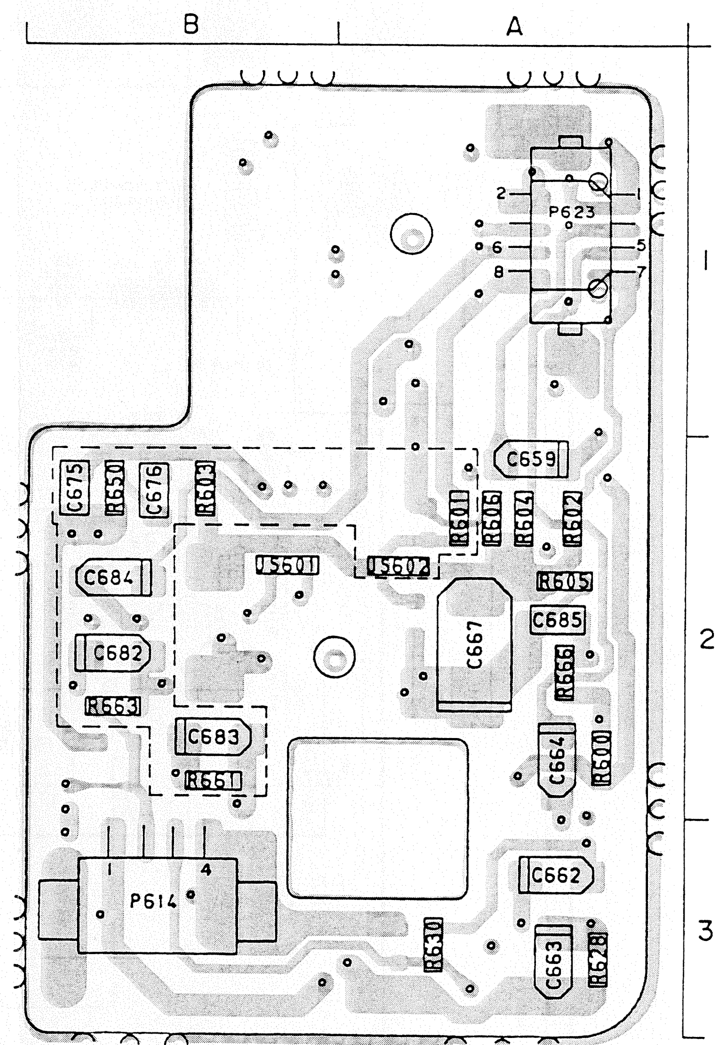
(TR651
TR661)

XP4401
(PNP x 2)

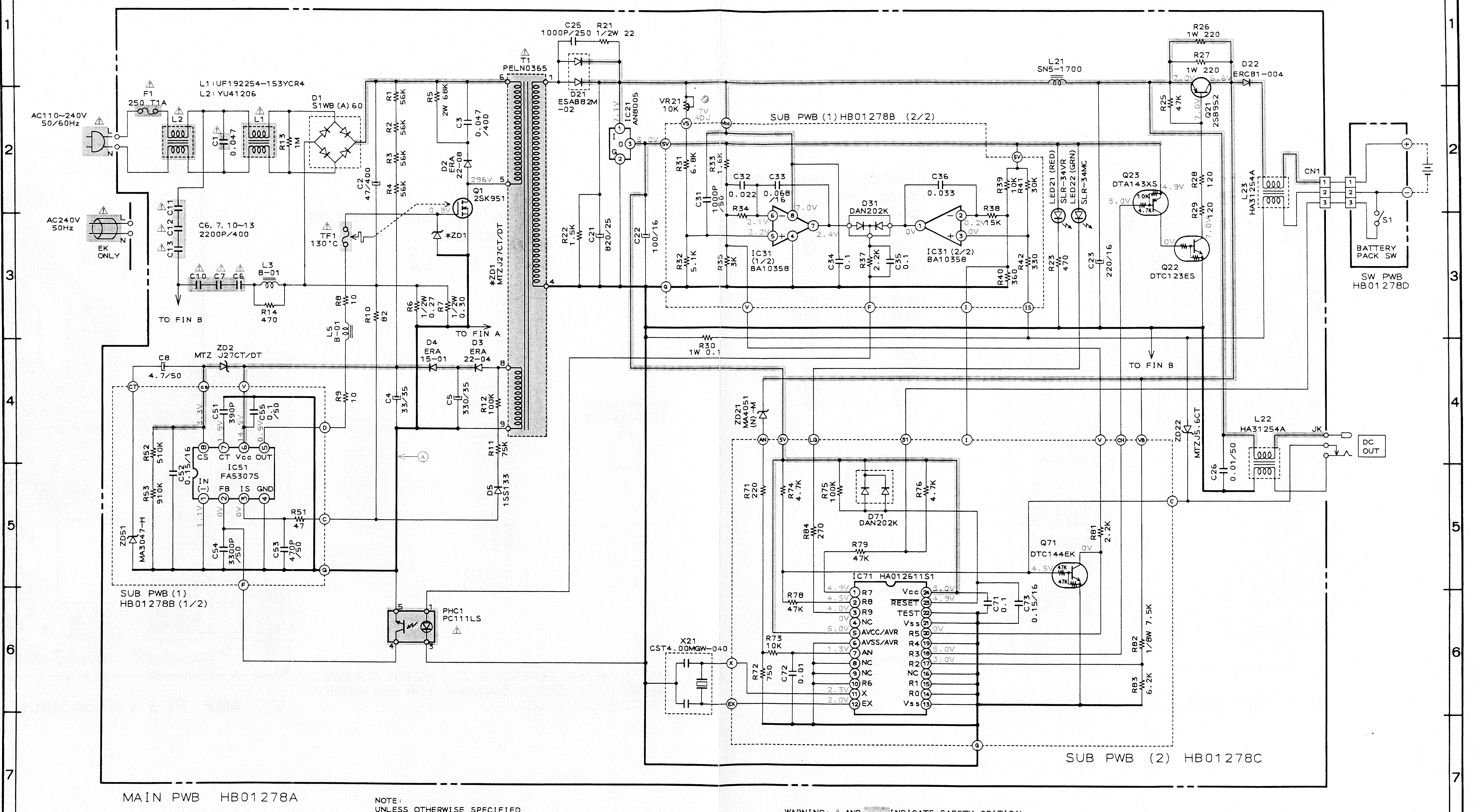

2C
1B
1E
5K
2E
2B
1C

(TR652,TR655
TR662,TR665)

NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER. REFER TO SCHEMATIC DIAGRAMS FOR PERTAINING PARTS INFORMATION.


B
A
1
2
3
P623
2
6
8
1
5
7
C659
C675
R650
C676
R603
R601
R606
R604
R602
C684
J5601
J5602
R605
C685
C667
C682
R666
R663
C683
C664
R600
R661
C662
P614
4
R630
C663
R628

MIC AMP PCB V3013A501C(TOP)


AC110~240V 50/60Hz
AC240V 50Hz
EK ONLY
F1 250 T1A
L1:UF192254-153YCR4
L2:YU41206
C1 0.047
R13 1M
D1 S1WB(A)60
C6, 7, 10~13 2200P/400
L3 B-01
R14 470
TO FIN B
R1 56K
R2 56K
R3 56K
R4 56K
R5 2W 68K
C3 0.047 /400
C2 47/400
D2 ERA 22-08
Q1 2SK951
TF1 130°C
*ZD1
*ZD1 MTZJ27CT/DT
T1 PELN0365
C25 1000P/250
R21 1/2W 22
D21 ESAB82M -02
IC21 AN8005
R22 1.5K
C21 820/25
C22 100/16
R8 10
R10 82
R6 1/2W 0.27
R7 1/2W 0.30
L5 B-01
TO FIN A
D4 ERA 15-01
D3 ERA 22-04
C8 4.7/50
ZD2 MTZ J27CT/DT
R9 10
C4 33/35
C5 330/35
R12 100K
R11 75K
D5 1SS133
IC51 FA5307S
C51 390P
C55 0.1 /50
C52 0.15/16
R52 510K
R53 910K
ZD51 MA3047-H
R51 47
C54 3300P /50
C53 470P /50
SUB PWB (1) HB01278B (1/2)
PHC1 PC111LS
L21 SN5-1700
VR21 10K
SUB PWB (1) HB01278B (2/2)
R31 6.8K
R33 1.6K
C31 1000P
C32 0.022
C33 0.068 /16
R34
IC31 (1/2) BA10358
D31 DAN202K
C36 0.033
IC31 (2/2) BA10358
R38 15K
R39 10K
R41 30K
R32 5.1K
R35 3K
C34 0.1
R37 2.2K
C35 0.1
R40 360
R42 330
LED21 (RED) SLR-34VR
LED22 (GRN) SLR-34MC
R23 470
C23 220/16
R30 1W 0.1
R26 1W 220
R27 1W 220
D22 ERC81-004
Q21 2SB952
R25 47K
Q23 DTA143XS
R28 120
R29 120
Q22 DTC123ES
L23 HA31254A
CN1
SW PWB HB01278D
BATTERY PACK SW
S1
ZD21 MA4051 (N)-M
ZD22 MTZJ5.6CT
L22 HA31254A
JK
DC OUT
C26 0.01/50
R71 220
R74 4.7K
R75 100K
R76 4.7K
D71 DAN202K
R84 270
R79 47K
R81 2.2K
Q71 DTC144EK
IC71 HA0126611S1
R78 47K
C71 0.1
C73 0.15/16
R73 10K
R72 750
C72 0.01
X21 CST4.00MGW-040
R82 1/8W 7.5K
R83 6.2K
SUB PWB (2) HB01278C
MAIN PWB HB01278A

NOTE:
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W
ALL CHIP RESISTORS IN OHMS 1/10W
ALL CAPACITORS IN µF 25WV

INDICATED VOLTAGES WERE MEASURED WITH NO LOAD
INPUT: AC 220V

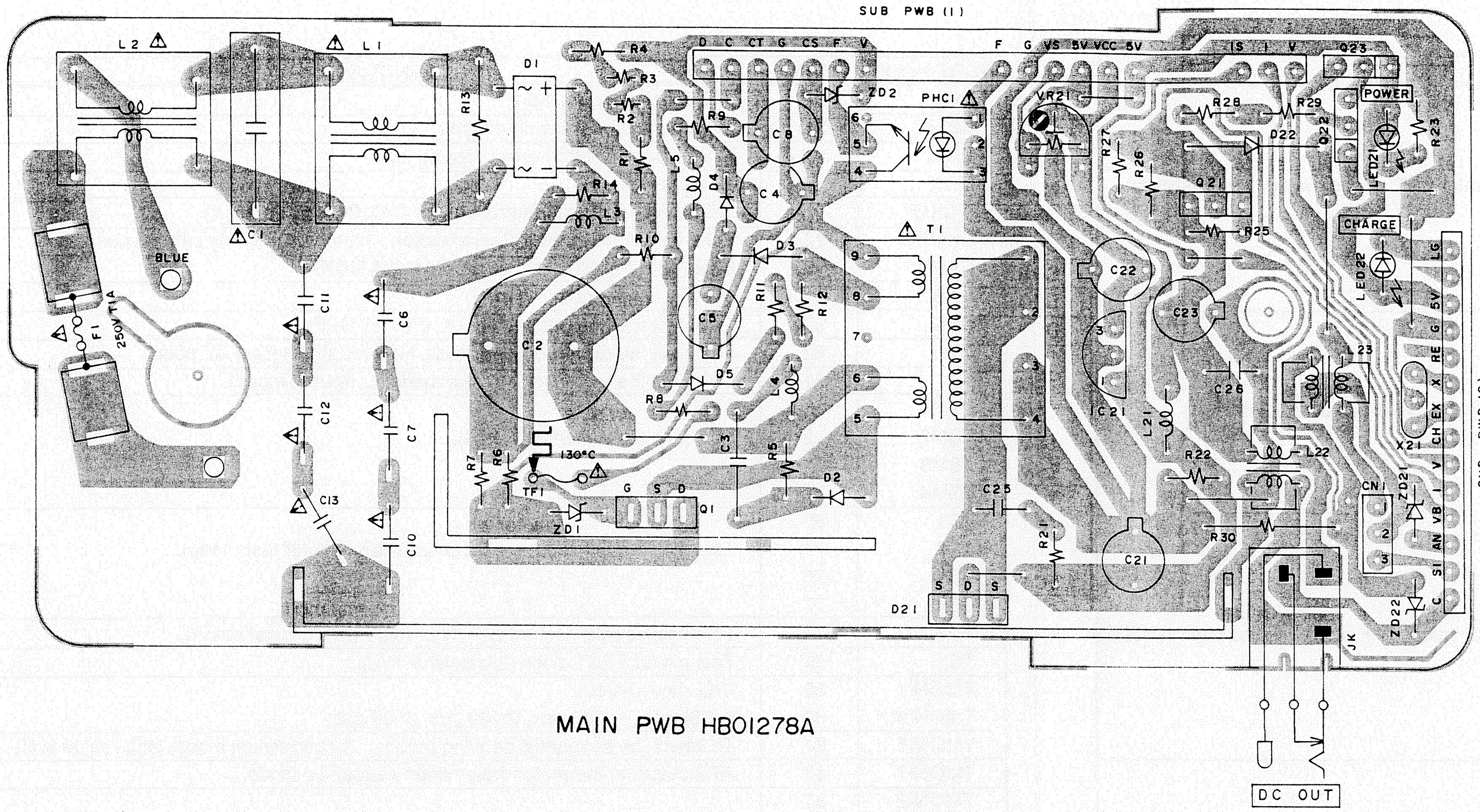
(CONNECTED DC VOLTMETER'S NEGATIVE INPUT TO THE Ⓐ POINT WHEN MEASURED PRIMARY SECTION.)

▨ B (POWER SUPPLY) LINE

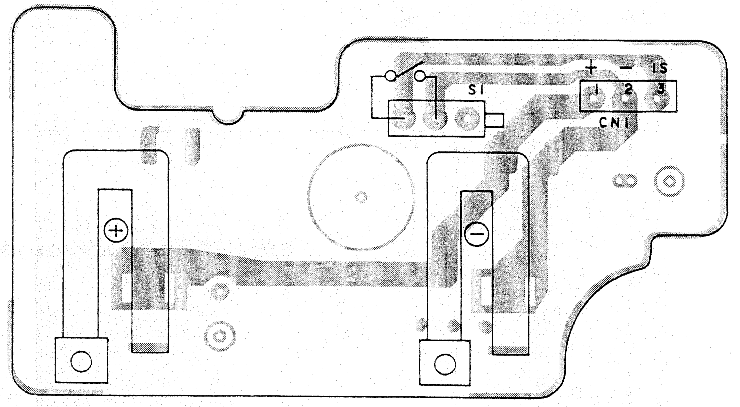
WARNING: ⚠ AND ▨ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSMENT: ⚠ ET ▨, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

VA-300EA/EK/EG
AC ADAPTER
SCHEMATIC DIAGRAM
No.15-15 V301315M


SUB PWB (1)
D C CT G CS F V
F G VS 5V VCC 5V
IS I V
L2
L1
D1
R4
R3
R2
R1
R9
R13
R14
L3
L5
R10
C8
C4
D4
D3
ZD2
PHC1
T1
VR21
R28
R29
R27
R26
D22
Q22
Q23
Q21
POWER
LED21
R23
R25
CHARGE
LED22
C22
C23
C21
C26
L23
IC21
L21
L22
R22
R30
R21
C25
X21
CN1
ZD21
ZD22
JK
D21
S D S
BLUE
F1
250V T1A
C1
C11
C6
C12
C7
C13
C10
C2
C5
D5
R11
R12
L4
R8
C3
R5
D2
R7
R6
TF1
130°C
ZD1
Q1
G S D
LG 5V G RE X EX CH V I VB AN SI C
SUB PWB (2)
DC OUT

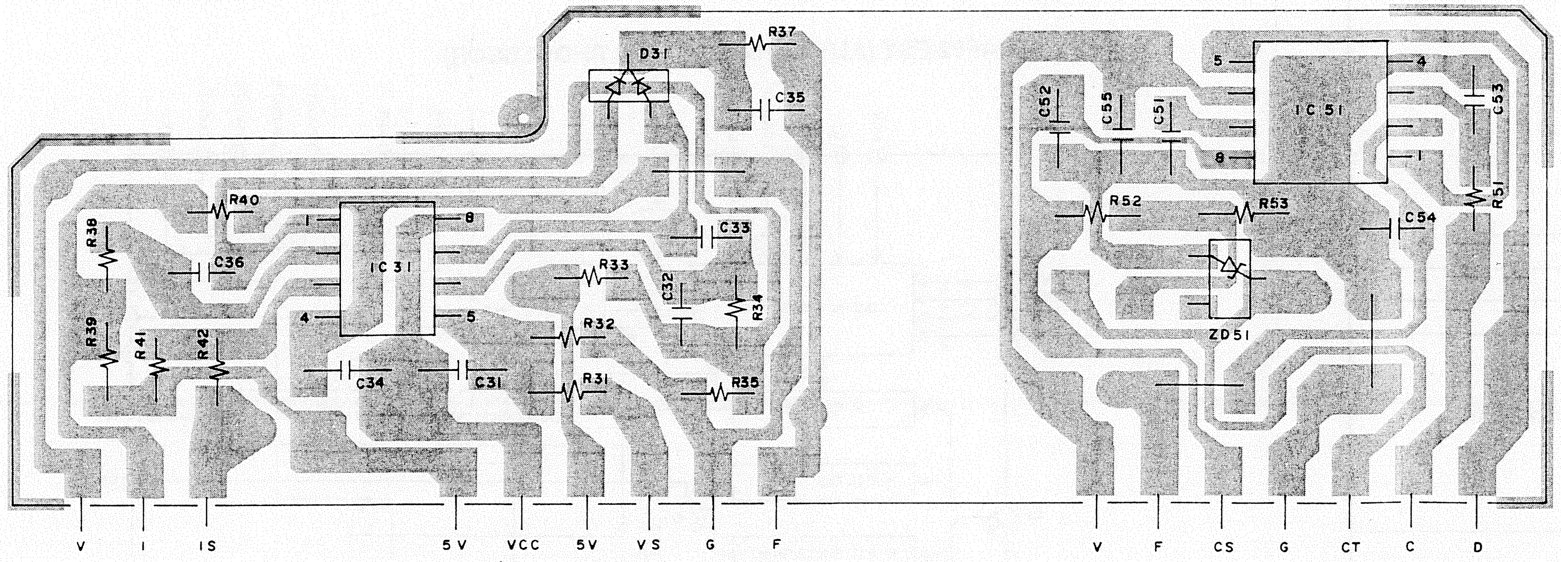
MAIN PWB HB01278A


S1
+ – IS
1 2 3
CN1

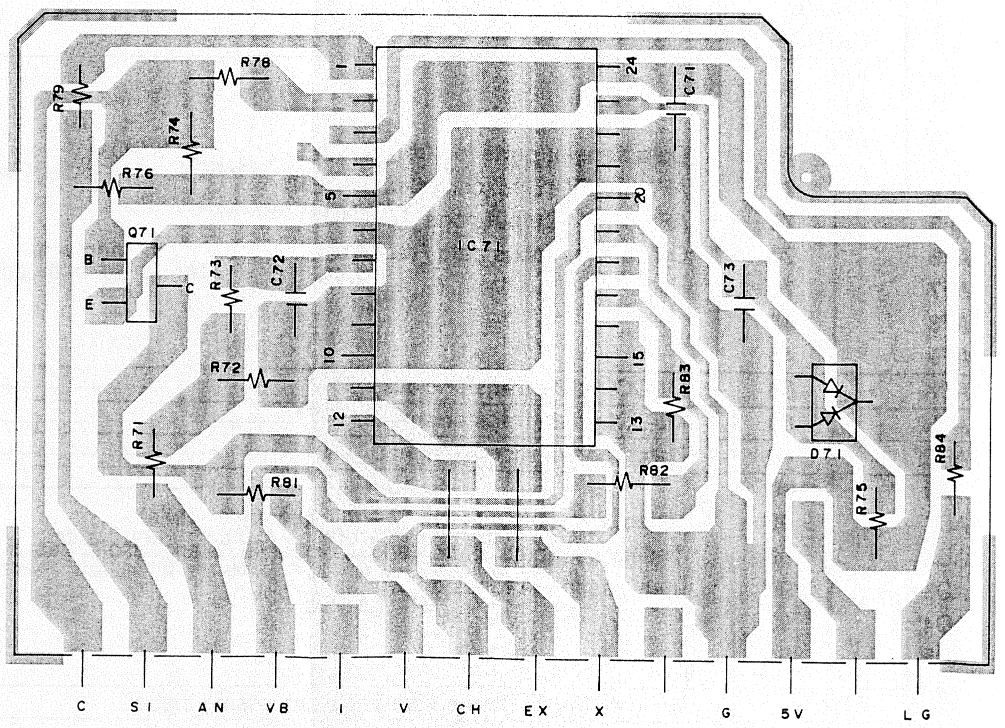
SW PWB HB01278D

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL,
NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT


D31
R37
C35
R40
IC31
R38
C36
C33
R33
C32
R34
R39
R41
R42
R32
C34
C31
R31
R35
V I IS 5V VCC 5V VS G F
IC51
C52
C55
C51
C53
R52
R53
C54
R51
ZD51
V F CS G CT C D

SUB PWB (1) HB01278B

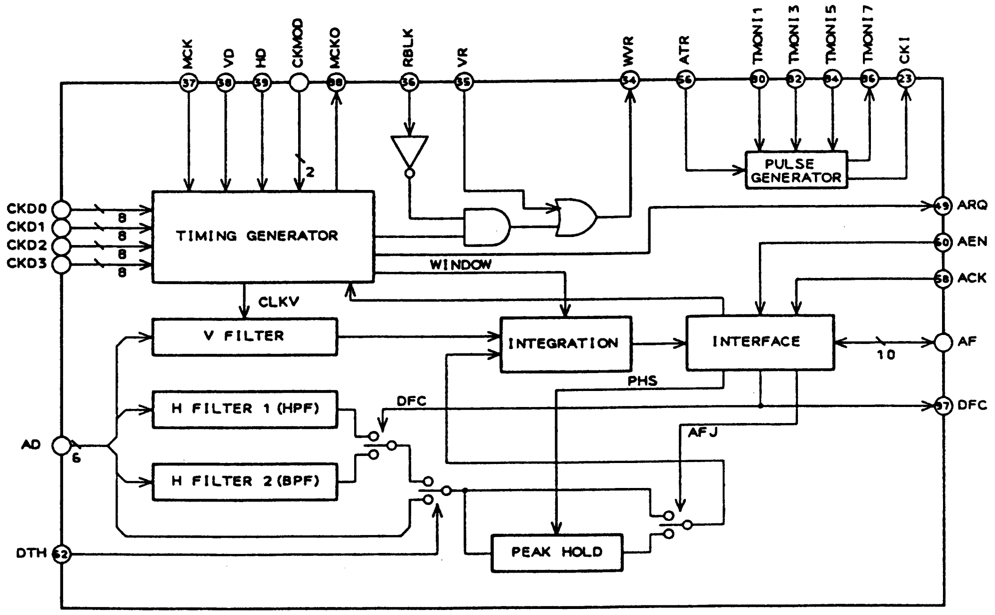

R79
R78
R74
R76
C71
IC71
Q71
B C E
R73
C72
C73
R72
R83
R71
R81
R82
D71
R84
R75
C SI AN VB I V CH EX X G 5V LG

SUB PWB (2) HB01278C

DAF02-FSY (AUTO CHASE FOCUS PROCESSOR)

PORT NAME	PIN No.	FUNCTION
CKD10	30	Vertical effective position assignment value. (Initial value is E1 by internal pull up resistors)
CKD11	33	
CKD12	41	
CKD13	42	
CKD14	43	
CKD15	46	
CKD16	48	
CKD17	50	
CKD20	51	Vertical divided block size assignment value. (Initial value is F0 by pull up resistors)
CKD21	52	
CKD22	55	
CKD23	57	
CKD24	59	
CKD25	61	
CKD26	63	
CKD27	67	
CKD30	5	Horizontal effective position assignment value. (Initial value is FF by internal pull up resistors)
CKD31	6	
CKD32	7	
CKD33	8	
CKD34	9	
CKD35	10	
CKD36	11	
CKD37	12	
CKD40	13	Horizontal divided block size assignment value. (Initial value is FF by pull up resistors)
CKD41	14	
CKD42	16	
CKD43	17	
CKD44	18	
CKD45	19	
CKD46	20	
CKD47	21	
AF0	64	Data transfer ports to / from CAMERA control MI-COM. AF0 to AF7 : Bus (controled by AEN) AF8, AF9 : Output ports Outputs the focus data / recieves filter, focus mode and window data.
AF1	66	
AF2	68	
AF3	70	
AF4	72	
AF5	73	
AF6	74	
AF7	75	
AF8	44	
AF9	45	
ACK	58	MI-COM data transfer clock.
AEN	60	MI-COM data transfer enable.
ARQ	49	Data transfer request signal.
AD0	100	Video signal inputs from the A/D convertor (6 bits). These are inputs of the various digital filters and also bases of the focus data when generating the focus data.
AD1	99	
AD2	98	
AD3	96	
AD4	93	
AD5	91	
ATR	56	Focus motor drive pulse processing trigger.
CK1	23	Focus motor drive pulse output.
VD	38	V-sync input.
HD	39	H-sync input.
VR	35	IMS character data input.
RBLK	36	IMS character's edge data input.
WVR	34	IMS character (with frame) data output
MCK	37	Master clock.
MCKO	88	A/D convertor clock (controlled with CKMOD0,1 and MCK)
CKMD0	92	Selection of the clock's division factor. (Initial value is 4 by internal pull up.) 0: MCK, 1: 1/2 MCK, 3: 1/3 MCK, 4: 1/4 MCK.
CKMD1	95	
SRST	47	System reset input.
DFC	97	To select the filter mode BPF or HPF. (H: BPF)
DTH	62	To select the digital through mode. H: through (filter pass) mode.
TJ	31	To select the test mode (H: test mode, L: normal mode).
TSM1	1	Test pins (Test monitor select).
TSM2	2	
TSM3	24	
TSM4	25	
TC1	69	Test pins (to select internal counter when counter test mode).
TC2	71	
TC3	76	
TC4	77	
TCS	89	To select counter test mode (Initial value is H: normal mode).
TCK	94	Test pin for TEST clock (Initial value is L).
TMONI1	80	CK1 mode select. 0: 390 pps, 1: 240 pps, 2:120 pps, 3: 60 pps.
TMONI3	82	
TMONI5	84	To select the sequential sending mode (L: sequential mode, initial value is H)
TMONI7	86	ATR output to the motor driver when sequential mode.
TMONI2	81	Test pins (test monitor output).
TMONI4	83	
TMONI6	85	
TMONI8	87	
TIN3	22	Test pins (test data inputs, initial value is 0).
TIN4	26	
TIN5	27	
TIN6	32	

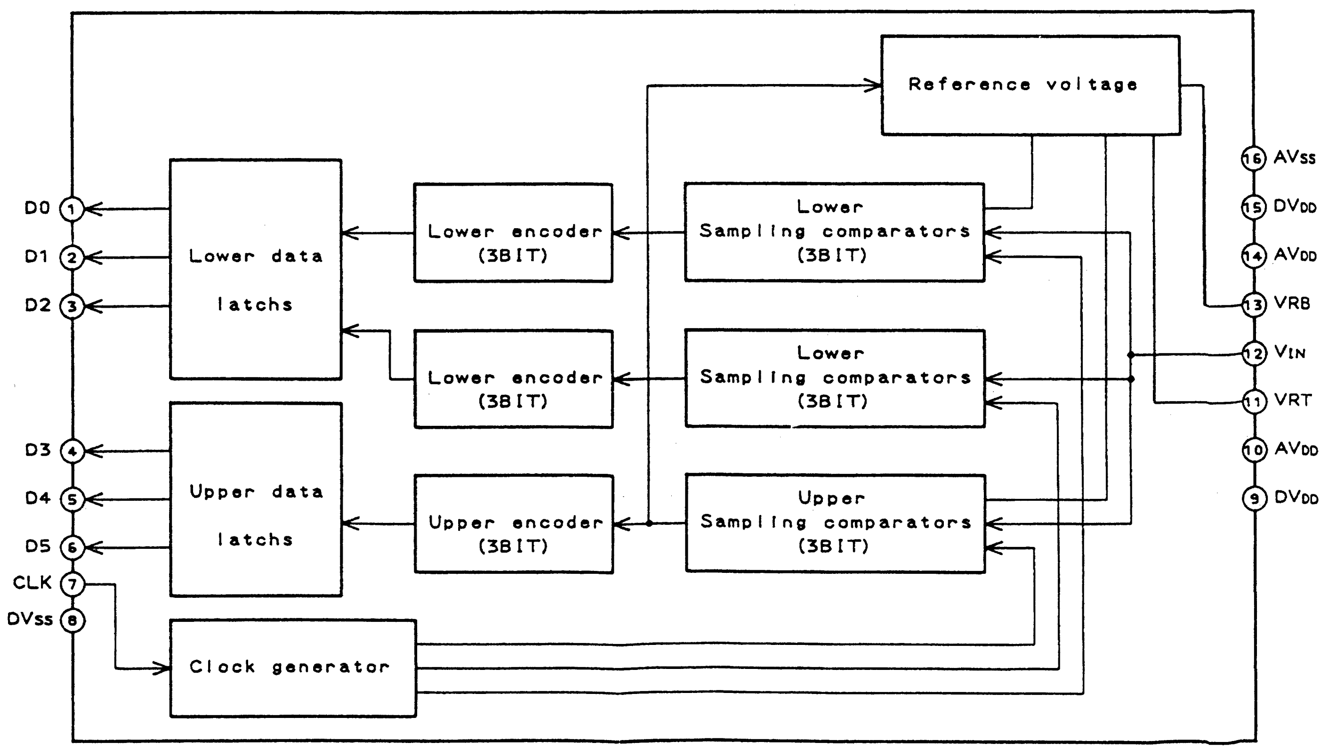
DAF02-FSY (AUTO CHASE FOCUS PROCESSOR)


MCK
VD
HD
CKMOD
MCKO
RBLK
VR
WVR
ATR
TMONI1
TMONI3
TMONI5
TMONI7
CK1
37
38
39
88
36
35
54
56
80
82
84
86
23
2
PULSE GENERATOR
CKD0
CKD1
CKD2
CKD3
8
8
8
8
TIMING GENERATOR
WINDOW
49 ARQ
60 AEN
58 ACK
CLKV
V FILTER
INTEGRATION
INTERFACE
AF
10
PHS
H FILTER 1 (HPF)
DFC
97 DFC
AFJ
AD
6
H FILTER 2 (BPF)
DTH 62
PEAK HOLD

M37451M8-224FP (CAMERA CONTROL MI-COM)

PORT NAME	PIN No.	FUNCTION
N.C	1	No connection.
WB -Y	2	White level detect input.
ARQ	3	Data transfer control signal input.
CK	4	Serial clock output to D/A.
SDI	5	Serial data out to D/A.
LD1	6	Chip select 1.
LD2	7	Chip select 2.
SCL	8	Serial clock out to EEP-ROM.
SDA	9	Serial data in/out from/to EEP-ROM.
SDE	10	Data transfer control signal out to titler.
SIN	11	Serial data out to titler.
HALL SW	12	Hall amp gain control output.
SCLK	13	Serial clock out to titler.
FMSPD2	14	Focus motor speed control out 2
FMSPD1	15	Focus motor speed control out 1
EE5	16	EE/PB judge input.
HD	17	H sync signal input.
VTG	18	V sync signal input.
SLEEP	19	Operation control in/out (power on/off)
CNVss	25	Chip mode select input (D-GND)
RESET/AC	26	Reset input.
X IN	28	X'tal connecting terminal.
X OUT	29	X'tal connecting terminal.
Vss	32	To be connected D-GND.
ZOOM T	33	Zoom motor control out (TELE)
ZOOM W	34	Zoom motor control out (WIDE)
SENSE	35	Focus reference position detect input.
HI-RESO	36	Auto focus mode control input.
LED-IHQ	37	I-HQ LED ON/OFF control out.
TARRY	38	Tarry LED ON/OFF control out.
AF9	39	Auto focus transferred data in/out
AF8	40	
AF7	42	
AF6	43	
AF5	44	
AF4	45	
AF3	46	
AF2	47	
AF1	48	
AF0	49	
DTH	50	Auto focus IC mode select out.
AEN	51	Data transfer direction control out to auto focus IC.
ACK	52	Serial clock out to auto focus IC.
TITLER	53	Digital memory available model select input.
EMZ1	54	PV-M2 or M4/MS8 model select input.
FCS RST	55	Focus motor driver reset output.
CW/CCW	56	Focus moving direction select output.
ATR	57	Focus motor drive pulse trigger output.
T/W2	58	Zoom encoder (detail) input.
T/W1	59	Zoom encoder (rough) input.
WB -V	62	Colour temperature range voltage detect input.
WB - CT	63	Colour temperature voltage detect input.
IRIS LEV	64	Iris open condition detect input.
KENPA	65	CCD output voltage detect input.
IRIS-CONT 2	66	Iris control voltage output (detail).
IRIS-CONT 1	67	Iris control voltage output (rough).
DA Vref	68	D/A convertor reference voltage terminal.
AD Vref	69	A/D convertor reference voltage terminal.
A Vss	70	Analogue power supply ground.
A Vcc	71	Analogue power supply terminal.
Vcc	72	Power supply terminal.
Vss	73	Ground terminal.
CMR-BUSY	74	Transfer BUSY output to OPE. MI-COM.
CMR-CLK	75	Serial clock input from OPE. MI-COM.
CMR-DATA	76	Serial data out to OPE. MI-COM.
OPE-DATA	77	Serial data in from OPE. MI-COM.
FADE SW	78	Black/white fader select output.
SHUT	79	Shutter speed select pulse output.

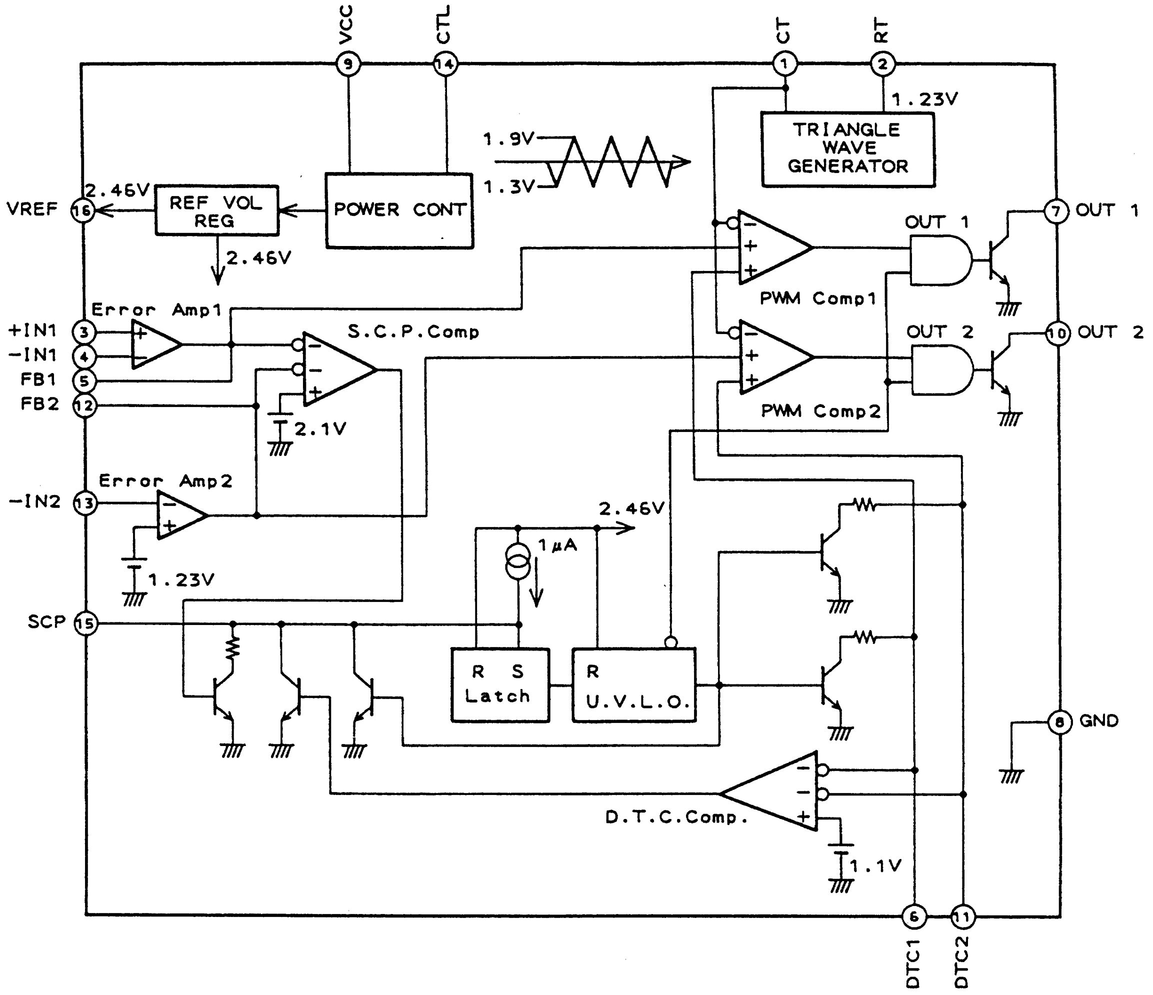
CXD1172AM (6 BIT A/D CONVERTOR)


Reference voltage
AVss
DVDD
AVDD
VRB
VIN
VRT
AVDD
DVDD
D0
D1
D2
D3
D4
D5
CLK
DVss
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Lower data latchs
Lower encoder (3BIT)
Lower Sampling comparators (3BIT)
Lower encoder (3BIT)
Lower Sampling comparators (3BIT)
Upper data latchs
Upper encoder (3BIT)
Upper Sampling comparators (3BIT)
Clock generator

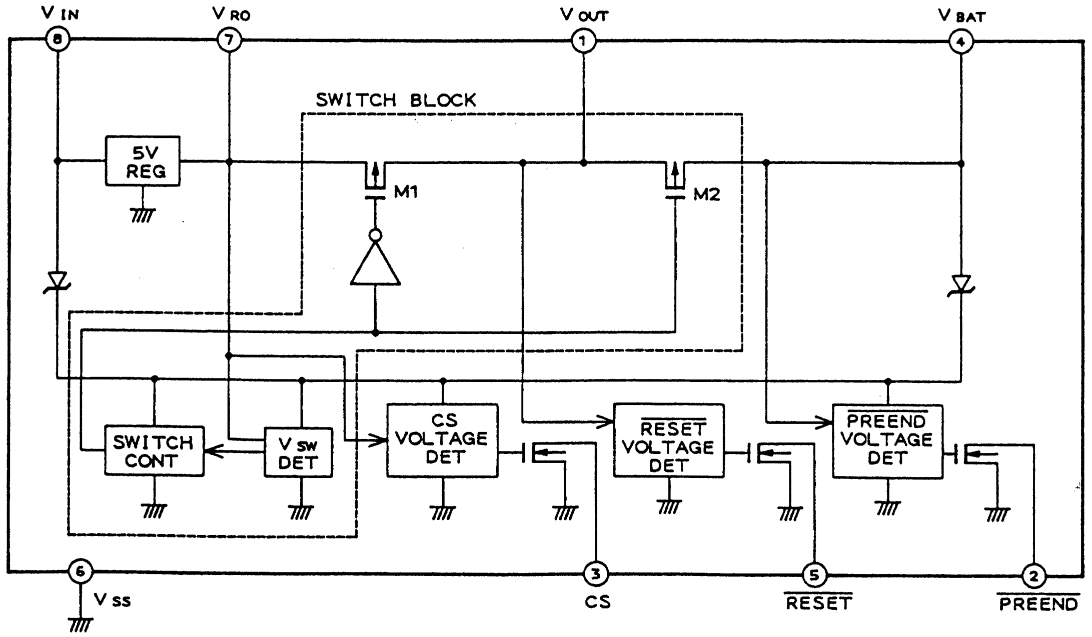
M37471M8-222 (OPERATION MI-COM)

PORT NAME	PIN No.	FUNCTION
CLKTST	3	X'tal OSC out for timer.
CMR-CLK	4	Serial clock out to camera MI-COM.
CMR-BUSY	5	BUSY input from camera MI-COM.
Li-DET	7	Back up (Lithium) battery voltage input (A/D).
SCAN7	6	Key scan outputs.
SCAN6	8	
SCAN5	9	
SCAN4	10	
SCAN3	11	
SCAN2	12	
SCAN1	13	
SCAN0	14	
Vref	15	A/D convertor reference voltage terminal.
Xin	18	X'tal connecting terminal (main clock).
Xout	19	X'tal connecting terminal (main clock).
AVss	21	Analogue power supply ground terminal.
Vss	22	Ground terminal.
Vcc	23	Power supply terminal.
Xc in	25	X'tal connecting terminal (timer clock).
Xc out	26	X'tal connecting terminal (timer clock).
$\overline{\text{RESET}}$	28	Reset input.
IR	30	Remote control signal input.
$\overline{\text{PDOWN}}$	32	Power supply voltage drop detect input.
CMR-DATA	33	Serial data input from camera MI-COM.
$\overline{\text{RESET/AC}}$	35	Reset pulse output to external ICs.
AL	36	Power supply (always) control output.
SYS-CLK	37	Serial clock output to SYS-CON MI-COM.
FADER	38	Fader key input.
KEY0	39	Key scan inputs.
KEY1	40	
KEY2	41	
KEY3	42	
KEY4	43	
KEY5	46	
SLEEP	47	SLEEP output to external ICs.
WAKE-UP	48	WAKE UP output to SYS-CON MI-COM.
SYS-BUSY	49	BUSY input from SYS-CON MI-COM.
Vss	51	Ground terminal.
SYS-DATA	52	Serial data input from SYS-CON MI-COM.
STB	53	On screen display strobe output.
CLK	54	On screen display clock output.
OP-DATA	55	Serial data output to CAMERA, SYS-CON and OSD ICs.

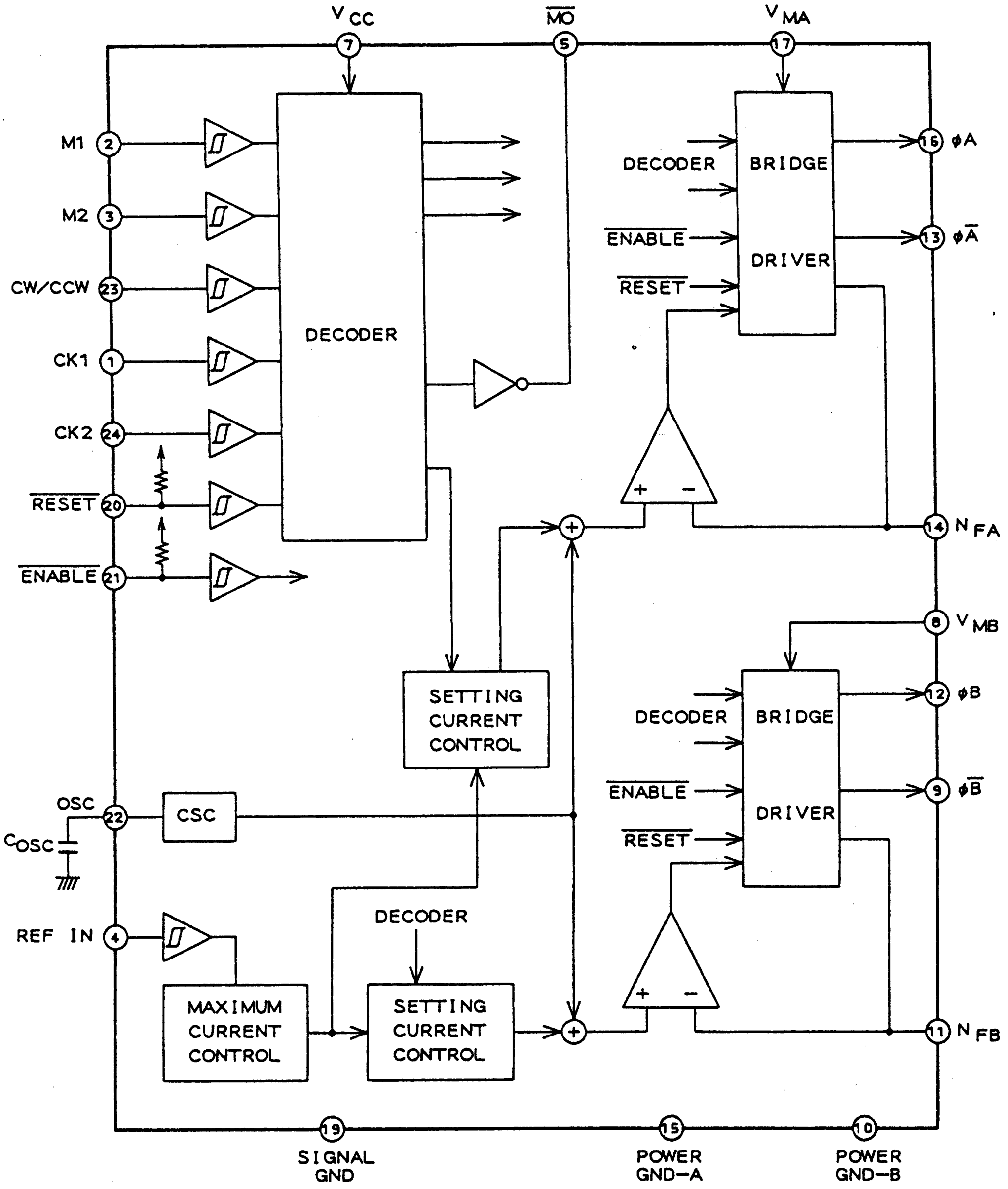
MB3778PFV (SWITCHING REGULATOR CONTROLLER)


VCC
CTL
CT
RT
9
14
1
2
1.23V
TRIANGLE WAVE GENERATOR
1.9V
1.3V
VREF
16
2.46V
REF VOL REG
POWER CONT
2.46V
OUT 1
7
OUT 1
PWM Comp1
OUT 2
10
OUT 2
Error Amp1
+IN1
3
−IN1
4
FB1
5
FB2
12
S.C.P.Comp
2.1V
PWM Comp2
Error Amp2
−IN2
13
1.23V
2.46V
1μA
SCP
15
R S Latch
R U.V.L.O.
GND
8
D.T.C.Comp.
1.1V
6
11
DTC1
DTC2

S-8420BF-T1 (BATTERY BACK-UP SELECT)

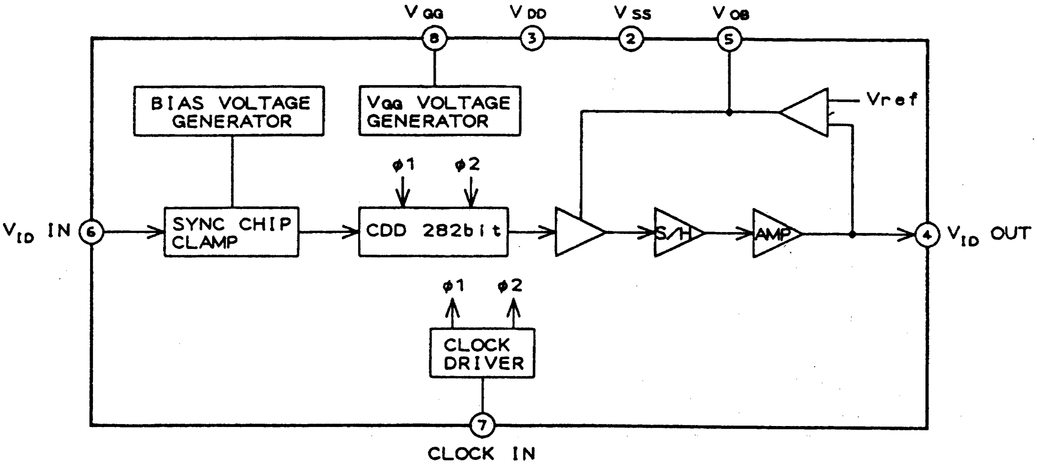

V IN
8
V RO
7
V OUT
1
V BAT
4
SWITCH BLOCK
5V REG
M1
M2
SWITCH CONT
V SW DET
CS VOLTAGE DET
RESET VOLTAGE DET
PREEND VOLTAGE DET
6
V SS
3
CS
5
RESET
2
PREEND

TB6504F-EL (STEPPING MOTOR CONTROL DRIVER)



VCC 7
MO 5
VMA 17
M1 2
M2 3
CW/CCW 23
CK1 1
CK2 24
RESET 20
ENABLE 21
DECODER
DECODER
BRIDGE
DRIVER
ENABLE
RESET
16 φA
13 φA
14 NFA
8 VMB
12 φB
9 φB
11 NFB
SETTING CURRENT CONTROL
OSC 22
COSC
CSC
REF IN 4
MAXIMUM CURRENT CONTROL
DECODER
SETTING CURRENT CONTROL
19 SIGNAL GND
15 POWER GND-A
10 POWER GND-B

TL8811F (PAL CCD 1H DELAY LINE)



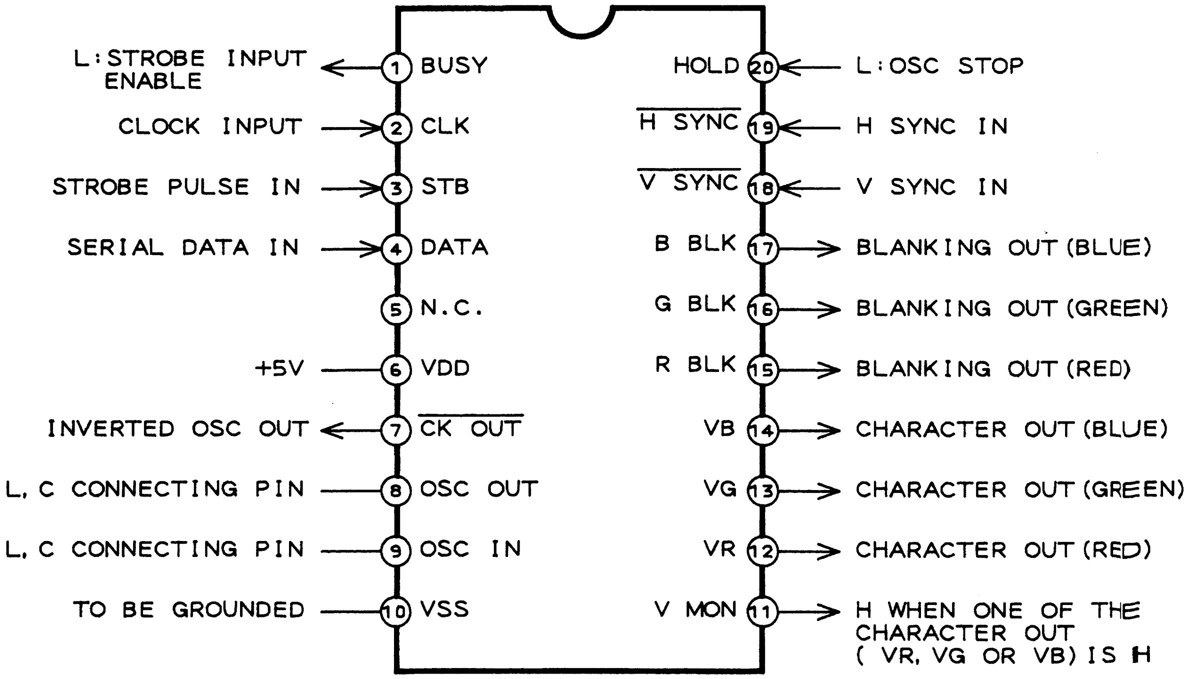
VGG 8
VDD 3
VSS 2
VOB 5
BIAS VOLTAGE GENERATOR
VGG VOLTAGE GENERATOR
Vref
φ1 φ2
VID IN 6
SYNC CHIP CLAMP
CDD 282bit
S/H
AMP
4 VID OUT
φ1 φ2
CLOCK DRIVER
7 CLOCK IN

PD78136GF (SERVO/SYSCON MI-COM)

PORT NAME	PIN No.	FUNCTION
DPG	1	DRUM PG pulse input.
SI	2	Serial data input from OPE. MI-COM.
SO	3	Serial data output to OPE. MI-COM.
SCK	4	Serial clock input from OPE. MI-COM.
WAKE UP	5	Start up command input.
ATF PLS	6	ATF pulse input.
SLW PLS	7	Slow pulse input.
REC. SAF	8	Tape REC enable detect.
CFG	9	CAPSTAN motor FG pulse input.
DFG	10	DRUM motor FG pulse input.
ENV. PLS	11	RF envelope detect pulse input.
C. SYNC	12	Composite sync input.
SWP	13	Switching pulse output.
SLEEP	14	Stand-by signal input.
VP	15	Quasi V sync output.
ME	16	I-HQ control output.
DPWM	17	DRUM motor servo error output.
CPWM	18	CAPSTAN motor servo error output.
AVss	19	Analogue GND.
AVref	20	Reference voltage.
ATF	21	ATF (Automatic tracking finding) signal input.
ENV. DET	22	VIDEO RF envelope input.
SS	23	Start sensor input.
ES	24	End sensor input.
SRP	25	Supply reel pulse input.
TRP	26	Take up reel pulse input.
BAT	27	Battery voltage detect input.
DEW	28	Dew sensor input.
$\overline{\text{RESET}}$	29	Reset input from OPE. MI-COM.
Vdd	30	+ 5 V.
X2	31	Clock 2.
X1	32	Clock 1.
Vss	33	GND.
TP	34	TEST pin.
TSA	35	ATF lock window output.
JOGPLS	36	Jogging control output.
EDIT	37	Tape Dubbing control output.
SEL1	38	ATF reference select output 1
SEL2	39	ATF reference select output 2.
REC MUTE	40	Audio REC mute control.
$\overline{\text{FE}}$	41	Flying erase ON/OFF control.
MODE B	42	Audio mode detect input B.
MODE A	43	Audio mode detect input A.
$\overline{\text{MONO}}$	44	Audio monaural detect input.
MATRIX	45	Matrix ON/OFF control output.
MODE2	46	Audio out control output (H: L-ch, L: R-ch).
MODE1	47	Audio out control output (H: R-ch, L: L-ch).
FADE	48	Fade control output.
A.MUTE	49	Audio mute control output.
$\overline{\text{REC.S}}$	50	REC power supply control output.
Hi8	51	Hi8 type recording control output.
SCL	52	EEP-ROM serial clock output.
SDA	53	EEP-ROM serial data output.
TUNE	54	I-HQ control output.
VCS	55	Video IC chip select output.
VSO	56	Serial data output for Video IC function control.

PORT NAME	PIN No.	FUNCTION
VCK	57	Serial clock output to video IC.
VS2	58	System set output 2 (PV-M2/M4/MS8).
VS1	59	System set output 1 (PV-M2/M4/MS8).
$\overline{\text{MP}}$/ME	60	Tape detect output.
NORM/Hi8	61	Tape type output.
CSW	62	Cassette switch input (ejected or not).
RSW3	63	Rotary switch (mecha. position) 3 input.
RSW2	64	Rotary switch (mecha. position) 2 input.
RSW1	65	Rotary switch (mecha. position) 1 input.
RUN	66	Not used.
Vss	67	To be grounded.
EA	68	To be pulled up.
LM.F	69	Loading motor direction control output (forward).
LM.R	70	Loading motor direction control output (reverse).
$\overline{\text{PB}}$	71	PB control output.
TRICK	72	System control output when TRICK mode.
SP	73	Tape speed detect output.
F/R	74	CAPSTAN motor direction control output.
CM STOP	75	CAPSTAN motor stop output.
$\overline{\text{DM STOP}}$	76	DRUM motor stop output.
Vdd	77	Supply + 5V.
STILL	78	Still mode output.
SRDY	79	Serial data transfer ready output.
Vref	80	Reference voltage output.

µPD6451 AGT-819 (CHARACTER GENERATOR)


L: STROBE INPUT ENABLE
1 BUSY
CLOCK INPUT
2 CLK
STROBE PULSE IN
3 STB
SERIAL DATA IN
4 DATA
5 N.C.
+5V
6 VDD
INVERTED OSC OUT
7 CK OUT
L, C CONNECTING PIN
8 OSC OUT
L, C CONNECTING PIN
9 OSC IN
TO BE GROUNDED
10 VSS
HOLD 20
L: OSC STOP
H SYNC 19
H SYNC IN
V SYNC 18
V SYNC IN
B BLK 17
BLANKING OUT (BLUE)
G BLK 16
BLANKING OUT (GREEN)
R BLK 15
BLANKING OUT (RED)
VB 14
CHARACTER OUT (BLUE)
VG 13
CHARACTER OUT (GREEN)
VR 12
CHARACTER OUT (RED)
V MON 11
H WHEN ONE OF THE CHARACTER OUT (VR, VG OR VB) IS H

ABBREVIATIONS (VIDEO)

ABBREVIATION	EXPLANATION
A	Audio or Analogue
AC	Alternating Current
ACC	Automatic Color Control
A/C	Audio and Control
ADJ	ADJust (ment)
AFC	Automatic Frequency Control
AFT	Automatic Fine Tuning
AGC	Automatic Gain Control
AH	Audio Head
AL	ALways (voltage)
ALC	Automatic Level Control
A-SW.P	Audio SWitching Pulse
A-MUTE	Audio MUTE
ANT	ANTenna
APC	Automatic Phase Control
ASSY	ASSemblY
BAL	BALance
B DOWN	Break DOWN
BGP	Burst Gate Pulse
BLK	BLocK or BLacK
BPF	Band Pass Filter
BU	Back Up (voltage)
B/W	Black and White
C	Chroma or Color
CCD	Charge Coupled Device
CCIR	Comité Consultatif International des Radio communications
CH (ch)	CHannel (channel)
CLK	CLocK
CM	Capstan Motor
CN	CoNnector
COMP	COMParator
CSW	Cassette SWitch
CSYNC	Composite SYNC
CTL	ConTrol
CUE	CUE
DAC	Digital to Analog Converter
DC	Direct Current
DEMOD	DEMODulator
DET	DETetct (DETector)
DL	Delay Line
DM	Drum Motor
DOC	Drop Out Compensator
D.P.E	Drum Phase Error
D.PG	Drum Pulse Generator
EE	Electronic to Electronic
EF	Emitter Follower
EMPHA	EMPHAsis
ENV	ENVelope
EP	Extended Play
EP ROM	Erasable Programmable ROM
EQ	EQualizer
FE	Full track Erase
FF	Flip-Flop or Fast Foward
FG	Frequency Generator
Fig	Figure
FLD	FLuorescent Display
FM	Frequency Modulation
Fo	resonance Frequency
FREQ	FREQuency
GND	GrouND
H	Horizontal
HP	Horizontal (sync) pulse
HPF	High Pass Filter
HQ	High Quality System
IC	Integrated Circuit
ID	IDentification
IDL	IDLe (Voltage)
IMS	Interactive Monitor System
INS	INSert
INV	INVerter
L	Left
LED	Light Emitting Diode
LIM	LIMitter
LM	Loading Motor
LM STP	Loading Motor STop
LP	Long Play
LPF	Low Pass Filter
ME-SECAM	Middle East SECAM
MI-COM	MIcro COMputer
MM	Mono-stayble Multi
MOD	MODulator
MRS	Motor ReverSe
NG	Noise Gate
NICAM	Near Instanteneous Compand Audio Multiplex
NON-LIN	NON-LINear
N.T.S.C.	National Television System Committee
OSC	OSCillator
PAL	Phase Alternation by Line
PB	Play Back
PCB (P.C.B)	Printed Circuit Board
P-COM	Phase-COMparator
P DOWN	Power DOWN
PG	Pulse Generator
P.I.P	Picture In Picture
PL, PLG	PLunger (PLunGer)
PRG (PGM)	PRoGram (ProGraM)
PU	Pick UP (head, pulse)
PWR	PoWeR
Q	Quality factor
R	Right
RAM	Random Access Memory
REC	RECord
REF	REFerence
REF-V	REFerence Vertical signal
REG	REGulator
REV (REVW)	REView (REVieW)
REW	REWind
RF	Radio Frequency
ROM	Read Only Memory
R.S SW	Record-Safety SWitch
RST (RES)	ReSet (RESet)
RVS	ReVerSe
S	Sensor, Shield
SAW	Surface Acoustic Wave
SC	SimulCast
S CLK	Serial CLocK
SECAM	SÉquentiel Couleur À Mémoire
S & H	Sample and Hold
SLP	Super Long Play
SP	Standard Play
SPD	SPeeD
SRP	Supply Reel Pulse
SRV	SeRVo
SOW	Sync On Word
STBY	STandBY
S.VHS	Super VHS
SW	SWitch
SW'NG	SWitchiNG
SWP	SWitching Pulse
SYNC	SYNChronize
T-AUDIO	Tuner AUDIO
TPZ (TRAPE)	TraPeZoid (TRAPEzoid)
TRK	TRacKing
TRP	Take up Reel Pulse
T/U	Take Up
TV	TeleVision
UHF	Ultra High Frequency
UNR	UNRegulated (voltage)
V	Vertical or Video
VASS	Video Address Search System
VCO	Voltage Controlled Oscillator
VH	Video Head
VHF	Very High Frequency
VHS	Video Home System
VIF	Video Intermediate Frequency
VISS	Video Index Search System
VJ	Video Judge
VM	Voltage for Memory
VOB	Video On Blank
VOW	Video On Word
VP	Vertical (sync) Pulse
VPS	Video Program System
VPT	Video Programming by video Text
VT	Voltage for Tuning
WHT	WHiTe
Y	Luminance
2H	2 Hour (SP)
4H	4 Hour (LP)
6H	6 Hour (SLP/EP)